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THE BOOM IN OFFICE BUILDINGS

AN ECONOMIC STUDY OF THE PAST TWO DECADES

Urban Land Institute T.B.58

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The Boom in Office Buildings

an economic study of the past two decades

by

Robert Moore Fisher
Senior Economist, Federal Reserve Board

Urban Land Institute
1200 Eighteenth Street, N.W.
Washington, D.C. 20036

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Preface

The Boom in Office Buildings was originally prepared as a staff economic study for the Board of Governors of the Federal Reserve System. The materials and analysis presented in it are based partly on numerous interviews held over a period of time with office-building lenders, developers, brokers, managers, and others in several cities. While credit is due to many persons who contributed ideas, the following deserve special mention: Bernard N. Freedman, Royal Shipp, and Alfred J. Tella of the Board's staff, Frank R. Garfield, formerly of the Board's staff, and Ernest M. Fisher, the author's father. The analyses and conclusions set forth are those of the author, however, and do not necessarily indicate concurrence by other members of the Federal Reserve research staffs, by the Board of Governors, or by the Federal Reserve Banks.

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Introduction

This background study explores the postwar construction boom in office buildings, in terms of supply, demand, financing, and leasing. The analysis focuses on a form of fixed investment that has been undergoing the first production boom in a generation, financed largely by a rapid expansion in mortgage credit. With a checkered history of boom and bust, office building activity at the present time raises questions about the course of output, employment, and income likely to be generated by the industry in the future.

Office buildings share, to some extent, certain economic characteristics that all types of income-producing real estate have in common. Each property type is exposed in varying degree to changes in ways of producing and distributing goods and services, and to shifts in the location of urban activities. Each functions in markets where the demand for usable space tends to be more flexible over the short run than the supply of it. Each is sensitive in some measure to changes in the cost and availability of mortgage funds. Each provides multiple opportunities for income and employment.

This study suggests how these economic characteristics pertain in the special case of office buildings. Emphasis is placed on certain aspects of office buildings that affect their value as loan collateral. Still other aspects are explored that influence the ability of office buildings to generate revenues adequate to repay any credit advanced against them. These and other features are obviously of interest to real estate lenders, borrowers, developers, occupants, appraisers, managers, and brokers. They also have implications for output, employment, consumption, and financing within the nation's entire economy.[1]

---

[1] For related studies about income-producing properties, see Robert Moore Fisher, "The Knowns and Unknowns in Lending on Income Producing Properties," *The American Banker*, October 1964, p. 30ff. and *The Mortgage Banker*, November 1964, p. 12ff.; "Some Economic Aspects of Income-Producing Real Estate," in *Essays in Urban Land Economics* (Los Angeles: UCLA Press, 1966), pp. 217-233; "The Quality of Real Estate Credit," in *1966 Proceedings*, Business and Economic Statistics Section, American Statistical Association, pp. 218-224; and Royal Shipp and Robert Moore Fisher, "The Postwar Boom in Hotels and Motels," a Federal Reserve Staff Economic Study (see Federal Reserve *Bulletin*, December 1965, p. 1703).

Summary of the Study

As part of the postwar boom in plant and equipment expenditures, new office buildings have accounted for a small but slowly increasing share of the nation's annual capital formation in real estate. By 1965, outlays for private office buildings probably exceeded \$2½ billion, and were 3½ per cent of the record aggregate expenditures for all types of new construction, as shown in Chart 1. Also, several hundred million dollars were laid out for new public office buildings, and an additional large but unknown amount of funds was used to finance the transfer, refinancing, and modernization of older office buildings. Through most of 1966, office building activity remained strong.

The office building boom which began in the early 1950's has been the longest and largest one on record in the United States. The record, however, stretches back no further than 100 years or so, for office buildings as a specialized type of construction and as a particular form of loan collateral generally date no earlier than the nineteenth century. They emerged at that time largely in response to the needs of a growing and increasingly bureaucratic society and the era of the organization man.

Since 1946, perhaps a third or more of all new office buildings have been erected for owner occupancy rather than for speculative rental. This surprisingly large share of custom construction has been sponsored by public as well as by private owners. Construction to order has assured a degree of continuity in developing and managing the structures that is unusual for most types of income-producing properties. The striking role played by public and private owner-occupancy of office buildings, in fact, has belied the classification of these structures solely as a type of rental "income producing" property.

Many private sponsors, especially financial institutions, have ordered office buildings for their own occupancy. Pending future expansion plans, these owners have often set aside some floor space for open-market rental. This practice has at times pre-empted tenants from speculative buildings — on which the same financial institutions may hold mortgages — whose landlords have no ties with their tenants as business clients or customers. Such competitive pressures appear to be unique to office building markets.

Continuance of the office building boom in its present form, then, depends partly on the expectations of institutional sponsors whose plans often look well into the future. Their decisions thus tend to be less influenced by near-term prospects of marketing completed floor space that dominate the outlook of speculative developers. This situation poses the possibility of actions by institutional owners that may disrupt local markets over the short term.

Postwar office construction has been limited to date by three striking aspects that set office markets apart from those of other types of income-producing properties. These features include exceptionally low turnover rates of existing office occupants, minimal demolition of older office buildings, and widespread conversion of other structures to office use. In the coming years, all three features may prove to be less restrictive than they have been.

If so, a larger share of total new office construction in the future will go toward replacing outmoded floor space that has been demolished. Also, aggregate construction will respond more sensitively to any changes in the rate of expansion of aggregate demand. Future construction may well become more volatile as a result.

The Sky is the Limit

Judging from press announcements and from contracts being let, a substantial volume of office floor space remains to be completed within a number of major areas during the next two or three years. Individual buildings or planned projects containing record amounts of floor space are now under way or being planned in such places as New York City, Chicago, Los Angeles, and San Francisco. Their completion will tend to dominate available local supplies of high-quality floor space in the future, just as a few new large buildings have often done in the past. These large structures will continue to pose a source of potential instability in the industry, despite the lack of secrecy about plans once development has started and despite the long period of time it takes to finish them.

The prospect of still bigger individual office buildings falls in line with a long trend toward larger scale in development. During each successive construction boom within the United States, the average size of office buildings (in terms of floor space) has probably tended to increase, at least in central business districts. Advantages of larger scale have, in effect, more than offset the disadvantages. In facilitating the trend toward larger scale, greater progress has been made toward improving techniques of high-rise construction and changing building design than toward assembling larger sites.

Not only has the scale of postwar office buildings often been relatively large, in comparison with prewar construction, development costs per square foot of floor space in office buildings also have tended to run higher than for most other types of income-producing properties. As a result, exceptionally large capital outlays have been expended for some new office buildings and projects. Correspondingly large needs for capital financing have been generated. Impressive additions have been made to local tax bases and to the nation's physical wealth.

The substantial volume of office buildings scheduled for near-term completion may well test local markets more severely than in the earlier postwar period when demand backlogs were large. The outlook obviously threatens the growing number of older office buildings accumulated from earlier investment. In certain areas, vacancy rates — particularly in prewar structures lacking the most up-to-date facilities — have been rising for some time, at least through early 1965, to levels that may be close to critical. Thereafter, some improvement probably took place through late 1966.

The long uptrend in vacancy rates among older buildings resulted in part from substantial suburban construction that provided an unprecedented range of locational choice for tenants. The increase in vacancies undoubtedly dampened the rise in rents within older structures. As an alternative to new high-cost construction, older buildings offer the potential attraction and threat of cheaper rents for floor space of lower quality and prestige value.

Space for the Organization Man

Postwar office buildings have accommodated a rapidly expanding form of economic activity. Such activity includes clerical, administrative, executive, and professional occupations in many different industries. No single industry dominates the total.

The postwar upsurge in demand for floor space in office buildings appears to reflect three main influences. First, there has been a sharp increase in the total volume of office activities. Despite growing use of electronic computers and other office equipment, this increase has been accompanied by a rapid expansion in employment of office workers. Second, there has probably been an increase in the share of total office activities and total office employment that has been accommodated in office buildings rather than in other kinds of facilities. Third, there appears to have been an increase in the average amount of floor space occupied per worker in office buildings, partly to provide room for more office machines and equipment.

Several of these underlying demand factors may now be in the process of slackening. Backlogs of demand for high-quality floor space in new prestige-type structures — unmet for two decades after the mid-1930's — may now have been worked down in many major areas. If so, demand for floor space in new buildings may have become even more postponable than before and more dependent on future prospects for the general economy. It may also have become more volatile in places where a relatively few large organizations have come to hold strong bargaining positions in negotiating for floor space. The postwar growth in number of failures, and in failure rates, among selected industrial and commercial enterprises, particularly of firms with large liabilities, serves as a cautionary note. So does the widespread extent of renting by public bodies under leases subject to 30-day cancellation clauses.

Even so, aggregate demand for floor space in office buildings seems likely to continue to expand, albeit at a somewhat slower pace than in the late 1950's and early 1960's. The postwar rise in the number of white-collar workers seems certain to continue as the economy moves still further toward service-oriented activities. Also certain is a continued growth in professional, technical, and administrative employees who consume larger-than-average amounts of office floor space per person. Whether technological influences will dampen or accelerate the aggregate growth rate in office-type occupations remains to be seen.

Greater use of computers and other automated office equipment and wider resort to more efficient means of management and communication may well bring dramatic longer-run changes in the regional focus of demand for office floor space. One possible clue may lie in the fact that Chicago's postwar boom to date has been much smaller than it was in the 1920's. Manhattan's, on the contrary, has been much larger.

Occupancy of floor space in public or private office buildings by Federal, state, and local governments and agencies has proliferated. Local prospects for the construction or leasing of floor space in privately-owned buildings accordingly depend partly on anticipations about future floor space requirements of public tenants, and the degree to which they will be met by publicly-owned structures. This element of uncertainty distinguishes office markets from those of many other types of income-producing real estate lacking any public demand for floor space.

Some stimulus to the future demand for office floor space will arise from further branching and mergers by private and public establishments as well as from more general requirements of growth. Such changes may often be accommodated best in new buildings with adequate floor space available to consolidate the operations of merged or expanded tenants.

Capital, Income and Outgo

The construction, refinancing, rehabilitation, and turnover of office buildings have given rise to large annual needs for financing. The forms and sources of such financing vary with type of ownership (private or public) and type of tenure (owner or renter). A broader range of choice ordinarily exists among forms and sources of financing private office buildings than for many other types of income-producing properties. Loan terms on private office buildings tend to be somewhat more liberal, too, often reflecting the use of relatively long-term leases.

Tightening monetary policy seems likely to influence the availability and cost of financing private office buildings less promptly, and to a smaller extent, than it affects the availability and cost of financing homes. The lesser sensitivity of office-building financing stems from differences in sources of funds as well as in types of sponsors. It also results from differences in scale of development.

Terms of financing new office buildings are often related closely to terms of occupancy. High occupancy rates in privately-owned structures make for large rent rolls (or the equivalent) and greater financial success in operation. Both favor loans attractive to borrowers, especially when backed by long-term leases.

Substantial leasing of floor space in new private buildings is often — but not invariably — a prerequisite to permanent financing. This requirement shifts some of the financial risk of successful operation from permanent lenders to construction lenders. It tends to encourage owners of new buildings to grant concessions and to assume the unexpired leases of incoming tenants, if necessary, in order to build up occupancy quickly. These and other practices make for negotiated leasing contracts and rental quotations that are far from standardized in all details.

Reported experience in operating older office buildings appears to have fallen short of expectations underlying the beginning of the boom in the early 1950's. Annual net operating income, however, has generally continued up, except in 1965. Ordinarily, these net revenues serve as the sole current source of funds available to meet whatever periodic payments may fall due toward principal and interest on borrowed funds. With moderately high ratios of operating expenses to operating income, office buildings stand vulnerable to sharp cyclical downturns in the economy to the extent that occupancy is not assured at earlier rent levels by long-term leases.

Nationwide information about office buildings leaves wide room for improvement. The scarcity of good statistics reflects the wide variety of "office buildings," the fragmented structure of the industry, and the absence of public programs directed toward it. What data are published fall short of giving complete — or often adequate — coverage even for certain bits of information.

There is a need for better periodic data about the amount, use, operation, and financing of office buildings. Steps toward improvement seem warranted in view of the important role of office buildings in terms of capital formation, employment, national wealth, local tax bases, rental income, and loan collateral. National efforts could well be directed toward improving our benchmark intelligence about many types of non-residential real estate, including office buildings. Steps already taken in a few places toward developing current local statistics about office building sales, foreclosures, occupancy, completions, operating experience, and other indicators show what could be done in other cities.

Supply

The office boom started in many localities no sooner than the early 1950's. It followed more than twenty years of minimal building activity. During this long period of slack output, a considerable backlog of demand accumulated for office space, especially in prestige-type structures.

Toward the end of World War II, occupancy in office buildings reached peak rates that were close to 100 per cent. Thereafter, the use of floor space remained quite high. But six to eight years or more elapsed in numerous cities before expectations about the profitability of erecting and operating new office buildings ripened to the point that substantial new outlays seemed justified. The lag reflected in part widespread anticipations — never realized — of a major business recession some time after the end of the war.

Office construction during the early postwar years was limited by certain special governmental controls in force from time to time over most types of construction. Federal controls were laid down on selected building materials shortly after World War II ended and again between 1950 and 1952. Terms of mortgage credit on nonresidential construction, including office buildings, were subject between February 1951 and September 1952 to the provisions of Regulation X, as administered by the Federal Reserve Board.

Rents in private office buildings, however, were controlled only in New York City, and solely in existing structures. A New York State law, passed in 1945, froze office rents in New York City at early 1944 levels. Later amendments released rents for vacant office space from control after early 1950. All other office rents were decontrolled after mid-1963.

Despite these periodic limitations on materials, credits, and rents, new office construction increased sharply in 1946 from minimum wartime levels. Then it tended up further over the next few years, and kept gathering momentum to emerge as a nationwide boom toward the mid-1950's. (Charts 1 and 2) Since then, it has accounted for a small but slowly increasing share of all new capital formation in real estate. New investment, indeed, has more than doubled during the past decade.

Although the nationwide office-building boom developed in the early 1950's, different cities experienced booms that varied both in pace and in timing, depending partly on whether dating is in terms of starts or completions, or number of buildings or number of square feet of floor space. The record, as might be expected, differed between downtown and suburban areas, due to the localized nature of real estate markets. Local booms were preceded or accompanied in many places by substantial renovation of older office buildings and conversion of other types of structures to office use. Renovation of older buildings often represented a local competitive response to the completion of the first new office building in a generation.

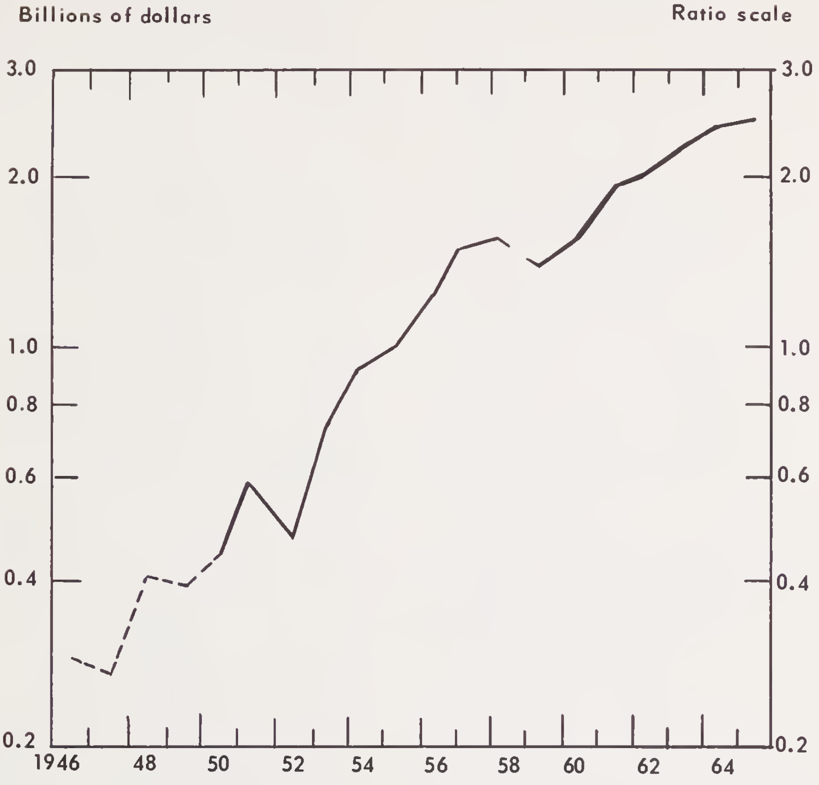
Within several cities, office-building booms were under way by late 1950. The chief place was Manhattan, where 20 new office buildings had been ~~started~~ and completed by this date. In a few other cities, including Pittsburgh, some major new office buildings had been started, foreshadowing completions one or more years later.

Measured in terms of completions, office booms in the central business districts of San Francisco and Los Angeles were relatively minor until about 1955. Major new office buildings appeared somewhat later in Philadelphia (about 1956) and in Chicago and Minneapolis (1957). They came still later in cities like Seattle (1959), Boston and Milwaukee (1960), and Baltimore (1962).

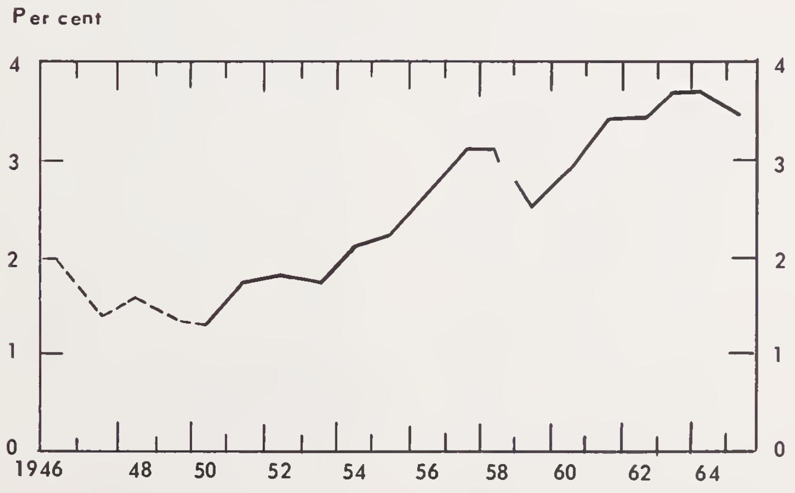
A widely publicized share of the postwar construction boom has been concentrated in such financial, political, or business centers as

Chart 1

Private Office Building Construction



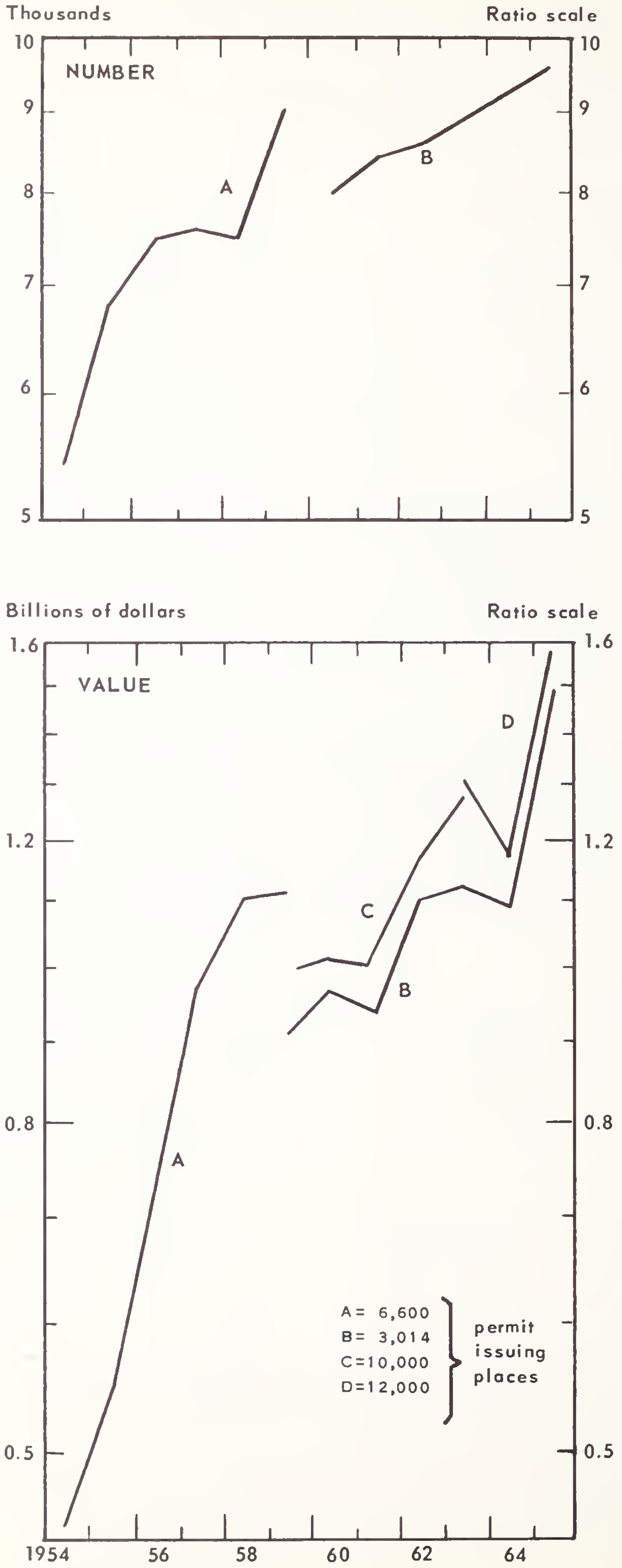
As Share of Total Construction



SOURCE: See Appendix

Chart 2

Permits for Private Office Construction



SOURCE: See Appendix

Chicago, Los Angeles, New York City, San Francisco, and Washington, D. C. Contrary to popular belief, however, these metropolitan areas have accounted for only a minor share of the boom, judging from data on building permits. Between 1954 and 1965, they accounted for less than two-fifths of the value of all permits issued for office buildings. More than three-fifths of all office construction, in other words, occurred elsewhere.

The construction of new office buildings has accordingly become a widely dispersed business. Home builders, who often specialized solely in house construction during the early postwar period, gradually diversified their activities in later years. By 1964, an average of one in every twelve home builders replying to a questionnaire distributed by the National Association of Home Builders reported doing some office construction. Four-fifths of all 6,000 larger construction contractors other than house builders surveyed by *Engineering News Record* in 1965 indicated that they did some commercial work like office building during the years between 1961 and 1963.

Local building firms, in fact, have erected the majority of new office buildings. Even the biggest builders of offices in New York City — such as Diesel, Fuller, Perini, Tishman, Turner, and Uris — operate at any one time in only a few other places. An entirely different roster of names accounts for much office construction in Washington, D. C. — Ajax, Blake, Cafritz, McShane, Smith, and Tompkins. For certain firms, it may be that "the evolution of building careers is from small apartment to larger apartment structures and then to office construction." [1] If so, this tendency may help to explain why the office boom emerged later than the apartment boom in a number of places.

Ownership of both new and existing office buildings is also quite localized and fragmented. Within any particular metropolitan area, a single owner may control a number of buildings. But he ordinarily holds only a minor share of the total office floor space. Local dominance — if it occurs — seems to be more typical of office management and leasing activities than of ownership.

The largest single owner of office buildings, of course, is the Federal government. Its national holdings, running into the thousands of structures, far exceed those of any one private investor. The largest life insurance company owns no more than 30 office buildings, including company premises. The real estate company of Webb and Knapp, Inc., controlled fewer than 30 office buildings at the height of its power. The real estate investment company with the largest current number of buildings also owns fewer than 30.

Custom Building

Custom office construction for public owners and for private business corporations and financial institutions has been an integral feature of the postwar boom. Office buildings erected to the order of the occupant (or his affiliate) have helped to satisfy a desire for prestige-type monumental structures sited at locations selected by the sponsors. Ample floor space can often be built to meet a sponsor's longer term needs as well as his immediately foreseeable office requirements. Pending future expansion needs of the sponsor, floor space currently in excess can be rented to tenants specifically approved by him. Since these office-building sponsors often have substantial resources of their own, they may finance the structures with their own funds, or may negotiate loans or sales-leaseback arrangements at favorable terms. In at least one state, owner-occupancy by certain types of private financial institutions has been encouraged by remission of property taxes on the office buildings to the extent that the sponsors pay certain business taxes.

Even in Manhattan, custom building has been larger than might be expected for a market area dominated by speculative development. Roughly a fourth of all Manhattan's postwar space has been built in owner-occupied office buildings only partly for rent, or in so-called non-competitive buildings used entirely by the owner or the tenant for his own use.

Custom construction in many other major cities has been more frequent than in Manhattan. About half of all new office space completed in Washington, D. C. between 1960 and 1966 was in public or private buildings that were largely owner-occupied. In Chicago through 1960, "of the 34 postwar additions to office space by new construction, 29 were constructed by government agencies, nonprofit organizations, insurance companies, or other business firms, each of which occupied part or all of its building after it was completed."[2] In both cities, speculative-type construction appears to have become more common recently.

---

[1] Daniel M. Friedenberg, "How to Make a Quick Million," *Esquire*, June 1965, p. 123.

The extent of custom office construction has partly reflected widespread building by commercial banks, savings and loan associations, mutual savings banks, and life insurance companies. The aggregate reported value of the premises owned by these institutions, and used for their offices, increased more than fivefold over the postwar period. By 1964, it reached $6.6 billion. Altogether, the institutions owned office buildings whose value far exceeded the total assessed valuation of all taxable office buildings in New York City ($3.7 billion).

Another source of custom construction has come from the public sector of the economy. Public construction probably aggregated as much as 10 to 20 per cent of total office building between 1956 and 1965. Thus, Federal, state, and local government construction accounts for a good deal more building activity in office markets than in housing markets (about 3 per cent) or in hotel-motel or retail-trade markets (none).

A dramatic instance of public sponsorship is the proposed multi-million-square-foot World Trade Center in Manhattan. It will be operated by the Port of New York Authority. Contrary to the policy followed in most publicly-owned buildings, some office floor space in the Center will be available for rental to private tenants.

The unusually large role played by public and private owner-occupancy of office buildings has implications for the timing, costs, and financing of office construction as well as for the occupancy and operation of completed buildings. Unfortunately, not all statistical information about office buildings distinguishes between owner and renter occupancy. Nor does it all cover both public and private sectors of the market.

Costs

Dependent on an ample supply of development capital, postwar office construction responded in various localities to the pressures of cumulative growth that developed at different times in underlying demand for high quality floor space. These pressures gradually made new production seem feasible even at the high costs per square foot for sites and buildings that are typical of office developments.

Relatively high development costs — plus the large scale of many downtown office buildings — have resulted in substantial individual investments. The two most valuable private properties in New York City are postwar office buildings — the Chase Manhattan Building ($88 million) in the financial district and the Pan Am Building ($81 million) uptown, as measured by 1965-66 property tax assessments. The third most valuable structure is the prewar Empire State Building ($56 million).

Besides capital expended by owners for land and buildings, occupants may lay out large sums for improving their suites with fixtures, often including partitioning. Such expenditures may run as high as a year's rent. They may accordingly be equivalent to a tenth or more of total site and construction costs.

According to one realty brokerage firm:

> "Due to the personnel-dictated need of being in midtown locations, many business machine tenants have had to lease standard office space [in Manhattan, Chicago, Boston, or Washington] which is not initially geared to their specialized tenancy. This has required additional investments on the part of the tenant (either directly paid by the tenant or amortized over the term of the lease as extra rent). These include the reinforcing of floors from 50 to 125 lbs. per square foot, raised floors, increased power requirements, special air conditioning and humidity equipment for 24 hour operations, and increased capacity of freight elevators to 4500 lbs."[3]

The desire to write off these outlays over a period of years helps to explain why tenants may bargain for long-term leases.

When landlords rather than tenants bear the direct expense of these improvements, office space is offered more on a ready-to-occupy "turn-key" basis like hotel-motel space. In that case, outlays for office fixtures tend to be capitalized in higher rents. As a result, they do not constitute a minimum capital prerequisite that the tenant must meet as a condition of occupancy.

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[2] See "Office Building Construction in Manhattan, 1947-1967," published by the Real Estate Board of New York (1964) and prepared by its Research Department; "Office Building Construction, Washington, D. C., 1960-1966," published by the Washington Board of Realtors (1965); and "Central Area Office Space Study, City of Chicago," summary of a study prepared for the City of Chicago Department of City Planning by the Real Estate Research Corporation (July 1960).

[3] "1965 Studley 4-City Report on the Business Machine Industry," Julien J. Studley, Inc., New York, 1965.

Postwar changes in the amount and quality of services typically provided by new office buildings have been reflected in costs of development, and in associated financing requirements. Central air conditioning with individual controls, accoustical ceilings, high-intensity lighting, electronic passenger elevators, cafeterias, auditoria, off-street loading platforms, interior automobile parking, and heavy-duty floors, electrical cables, and freight elevators have worked in the direction of higher construction costs per square foot of usable office floor space. On the other hand, lower ceilings, curtain wall construction, and building designs featuring a higher ratio of usable floor space to total floor space have worked toward some reduction in cost requirements. All these changes suggest that floor space in postwar office buildings comes packaged in a different fashion from floor space in prewar structures. This is one of several differences that complicate long-term comparisons of office rents, building costs, and operating experience.

Upward pressure on costs of developing postwar office buildings have emerged from the widespread extent of custom construction. Structures erected to the order of the owner-occupant — rather than on speculation — may involve considerations of development costs weighted in favor of monumental buildings serving partly as symbols of business or government status. Indeed, one writer has asserted that "in general, while the monument building can still turn a profit, there is no economic case for building one unless the builder can charge off the additional profits forgone to the presumed advertising value of occupying distinctive quarters. Which usually means that the builder has to *be* the tenant, rather than a speculator creating space for tenants unknown to him all during the planning stages."[4] A number of business firms have come to specialize during the postwar period in consulting on the design of these monumental buildings.

Suburban construction — in outlying locations where site costs may be lower and building codes less strict than downtown — has been a distinctive aspect of the postwar office boom. In many smaller places, it has accounted for all new office floor space added since 1946.

These suburban office buildings — usually offering free off-street automobile parking — have often been built in association with shopping centers, branch offices of financial institutions, or medical centers. Elaborate suburban executive office parks, with several buildings erected in a planned development, have been announced near such cities as Atlanta, Honolulu, Philadelphia, Oklahoma City, and Washington, D. C.

Another postwar adaptation of offices to the automobile age, in effect, has eliminated site costs and minimized construction costs. To match the mobile library and the mobile home, there is now the mobile office. A number of branches of banks and savings and loan associations have been located in trailers which circulate through outlying neighborhoods. Today, at least one title insurance company operates a mobile office in a cruising van designed to "carry the process of closing a real estate transaction directly to the principals concerned."

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[4] Daniel Seligman, "The Future Office-Building Boom," *Fortune Magazine*, March 1963, p. 87.

Changes in Supply

Postwar office construction in many locations has been dominated by a relatively few large structures. Numerous small new office buildings have been scattered throughout our urban areas, especially in the suburbs. But they have ordinarily accounted for a minor share of total new floor space.

The average new postwar office building, in fact, has been surprisingly small, partly reflecting widespread suburban construction. During 1965, the average new private office building was valued at only $153,500, just slightly more than the building-permit value of the average new private apartment house. The building-permit figures — even after upward adjustment for understatement — suggest that the average new private office building in 1965 probably contained no more than 15,000 or so square feet of floor space. This was close to the average of 17,600 square feet of floor space in new state and local public office and court buildings erected between 1961 and 1966.[1]

Even so, most new postwar office floor space has probably been concentrated in a few large buildings, especially those located within central business districts of larger metropolitan areas. Downtown office buildings with larger and larger amounts of floor space have been erected in an effort to capitalize on economies of scale associated with the demand side as well as with the supply side of the market, as detailed later. Many local office markets, accordingly, have been highly sensitive to the decisions of a handful of major owners about whether or not to erect one new building each, and when. In the typical larger city, only one or two large public or private office buildings may account for a substantial majority of the new floor space completed in any one year, or over a longer period.

The tendency for a few large, new buildings to dominate local markets for high-quality office space follows in part from the limited annual production of new structures. Compared with other types of construction, office buildings constitute a rare specimen. Among 3,014 permit-issuing localities, there was an average of only three building permits issued in 1965 per locality for new private office buildings. In contrast, there were seven permits per locality for new apartment houses, nine for new stores, and 190 for new single-family houses.

The dominance of a few large structures in metropolitan office markets can be documented for several cities. New office buildings in Manhattan accounted for 29 per cent of all new office buildings completed in New York City between 1959 and 1965, according to City Planning Department data. But Manhattan structures accounted for 94 per cent of all new floor space. This reflected the fact that the average new office building in Manhattan contained 37 times as much floor space as the average office building in the four other City boroughs combined.

In Manhattan itself, 202 new postwar office buildings with 71 million square feet of floor space were completed, or scheduled for completion, by 1966. Of this total, the 20 largest buildings accounted for more than a third of the floor space. The 40 largest buildings — or a fifth of the total number — accounted for more than a half of all floor space.

Relatively few large structures have also dominated new office construction in Washington, D. C., Chicago, and Los Angeles (to a lesser extent). Despite the limit on building height in Washington, D. C., the 17 largest office buildings completed there between 1960 and 1966 accounted for an eighth of all new buildings but for more than two-fifths of all new floor space. In downtown Chicago, the six largest office buildings completed in the Loop

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[1] Andrew Kinane, "Public Office and Court Buildings," in *State and Public Facility Needs and Financing*, A Study Prepared for the Subcommittee on Economic Progress of the Joint Economic Committee, I, *Public Facility Needs* (Washington, D. C.; USGPO, 1966), p. 684.

Sw

|| new construction commences
demolition
turnover occupancy

between 1949 and 1965 accounted for less than a fourth of all new buildings but for a half of all new office floor space (excluding space in additions or conversions). In the dispersed Los Angeles-Orange County area, the 14 largest postwar office buildings completed between 1947 and 1965 accounted for an eighth of all new buildings but for a third of all new floor space.

Only a few large new structures, therefore, may exert a marked impact on annual additions to the local supply of immediately available office floor space. In Manhattan, more new above-grade floor space was completed during 1963 in only 11 privately-owned competitive office buildings than was reported as standing vacant in 383 existing buildings surveyed early that year in which vacancy rates averaged 4.7 per cent. In Washington, D. C., 15 private competitive buildings were completed in 1964 with a total of over 900,000 square feet of floor space. This was more than four times the amount of vacant floor space (of varied quality) reported in 92 older buildings surveyed earlier in the year in which vacancy rates averaged 3.2 per cent. In downtown Chicago, more office floor space was completed in four new buildings in 1965 than stood vacant in 160 older buildings toward the end of 1964, when vacancy rates averaged 5½ per cent.

Removals and Conversions

The local supply of available office floor space depends on more than completions of new buildings and vacancies in older structures. It also depends on how much office floor space is removed through demolition or other means and how much is added through conversion. So far, postwar removals have probably been small and conversions have been large, in view of a strong underlying demand for office floor space.

The small net volume of postwar removals and the large volume of conversions have reflected the fact that private and public demand for office space constitutes a very intensive high-rent-paying use of floor space in downtown areas. Hence, relatively few office buildings have been demolished to make way for structures designed to accommodate other more intensive types of activities. When office buildings have been demolished, they have usually been replaced by even larger ones.

Postwar demolition activity, in fact, has generally run in the opposite direction. Intensive demands for office-building sites have stimulated the demolition of other types of structures. A recent dramatic case is the razing of the 46-story Morrison Hotel to make way for a 60-story headquarters office building of the First National Bank of Chicago. Apart from initial costs of land, the costs and time involved in clearing centrally-located sites help to explain why development outlays for new downtown office buildings are large and development periods are long.

Demolition of existing office buildings tends to be limited, too, by opportunities to refurbish them. Modernization may enable the owner to maintain the original height and site coverage of his building which would no longer be permissible for newly-built structures under updated zoning requirements. It can pay, then, to modernize within the shell of an existing office building rather than demolish and rebuild from the ground up. Such modernization provides a source of higher quality floor space that may escape local statistical series covering only new buildings.

Finally, demolition may be checked by the possibility of holding down rents in older nonmodernized buildings in order to meet competition. Older structures with lower property-tax liabilities, fewer tenant services such as air conditioning, and (possibly) lower debt-service requirements may be in a position to offer floor space at bargain rents. The potential competition to new construction of older lower-rent buildings (whether modernized or not) has been rising as their number has grown.

The turnover of the existing stock through demolition accordingly tends to be small.[1] Even the "temporary" government office buildings erected in Washington, D. C., during World War I lasted more than a generation; some still continue in use. In Manhattan's central business district where many older buildings were razed to make way for new ones, annual demolition of office floor space during the 1957-65 period still averaged no more than 0.5 per cent of the stock standing at the beginning of any one year. In downtown Chicago, the average ratio was only 0.2 per cent between 1946 and 1964. (Chart 3) Similar comprehensive statis-

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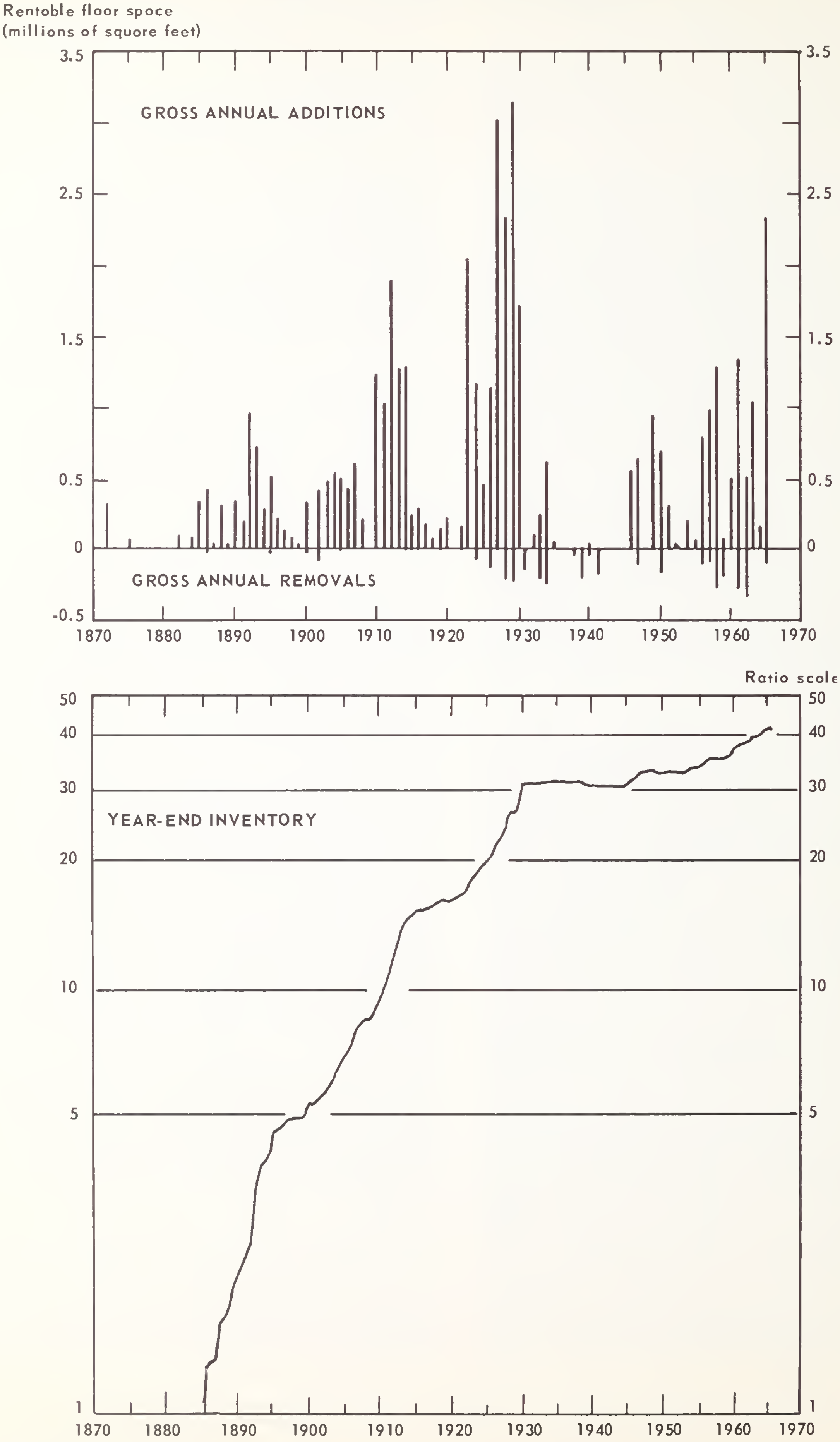
[1] This tendency, in turn, limits the "echo effect" of the subsequent bunching of replacements following a spurt in new construction. Cf. Dale W. Jorgenson, "Anticipations and Investment Behavior," in James S. Duesenberry et al, eds., *The Brookings Quarterly Econometric Model of the United States* (Chicago: Rand McNally, 1965), Chap. 2.

Chart 3

Office Building in Chicago



SOURCE: See Appendix

tics for other cities do not seem to be readily available.[2]

With rather low demolition rates, office buildings — whether modernized or not — may stand for generations. In Chicago, a fourth of the downtown office floor space built 90 years earlier (during the 1870-79 decade) was still in use in 1966, according to data of the Chicago Building Managers Association. A third of the space built 80 years earlier, and two-thirds of the floor space built 70 years earlier, was in use. Practically all of the floor space erected since the year 1900 was still reported as standing.

Nor have many office buildings been converted to other uses instead of being razed. With postwar office demand strong, most conversions in use have been into the office stock. Many structures such as hotels, loft buildings, apartment houses, or large old homes have been modified for office use. The high propensity to convert older structures to office use — and the low propensity to convert office space to other uses — may have made conversion into the office stock a potentially more important way of increasing the postwar supply than has been the case for many other types of real estate.

> "In Chicago, more office floor space was reportedly added in the Loop area between 1945 and 1960 through conversion than through new construction, reflecting in part the late emergence of the downtown building boom and particularly restrictive limits in force between 1942 and 1955 on the height or size of new buildings there. The postwar conversion of the huge Merchandise Mart from a display warehouse largely to an office building was a notable example of this type of activity. In Philadelphia, conversion of 'five existing buildings that had been originally designed for purposes other than business or professional offices' accounted for about a fourth of all commercial office floor space added from 1956 through 1959." [3]

Turnover of Occupancy

The supply of office floor space placed on the market during any length of time depends on the turnover of occupancy in existing buildings, in addition to the volume of new completions, conversion, and demolition, and the amount of vacant floor space available at the beginning of the period.

The supply of floor space made available annually through turnover of occupancy in office buildings tends to be unusually low.[4] Tenant turnover rates in many places probably average less than 5 per cent a year, as implied by data for private buildings managed by members of the National Building Owners and Managers Association. This figure is considerably below the average for many other types of income-producing properties. For apartment buildings, the annual turnover rate averages at least 20 per cent. For hotels and motels, in which room occupancy changes almost daily, the rate exceeds 1,000 per cent.

Low turnover of office occupants reflects in part the relatively long maturities of typical office leases for rented space, and the widespread occupancy of office floor space by owners anchored to their present buildings. It reflects, too, the flexible way that office floor space can be used. This flexibility can permit workers added to an office force to be accommodated for some time by crowding-up in current quarters and so delaying, at least, a move to more spacious quarters.

Three striking features of postwar office markets — low turnover of occupancy, low demolition activity, and high conversion activity — have acted as limiting forces on the construction of new office buildings. Low turnover has constrained new construction on the demand side by limiting the number of potential occupants looking for floor space in new buildings who enter the market as a result of moving from former quarters. Low demolition and high conversion rates have dampened new construction on the supply side by tending to conserve and upgrade the stock of existing office floor space potentially competitive with new floor space.

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[2] The nationwide ratio for housing units demolished annually during the 1950's averaged about 0.4 per cent of the national stock of dwellings standing at the beginning of the year. This ratio, of course, related to housing outside central areas as well as within them. The guideline lives currently suggested by the U.S. Treasury Department for depreciating assets for federal income tax purposes are as follows: apartments, 40 years; dwellings, 45 years; office buildings, 45 years. These lives imply an average annual depreciation rate of over 1.5 per cent.

[3] See "Downtown Office Space in Chicago—Supply Up, Rising Further," *Business Conditions*, Federal Reserve Bank of Chicago, April 1961, p. 5; and "Philadelphia Office Buildings in 1960," *Business Review*, Federal Reserve Bank of Philadelphia, March 1960, p. 14.

[4] Fisher, "Some Economic Aspects of Income-Producing Real Estate," *op. cit.* The low 5 per cent turnover rate cited in this source for reporting competitive office buildings in Manhattan during 1963 reflects the unusually long length of office leases in New York City. Rent control was also a factor through mid-1963. The rate reported for the May 1965-66 period, however, was even lower—2.6 per cent.

All three features may become less restrictive on new office construction in the future than they appear to have been during earlier postwar years. Turnover ~~of occupancy may in~~crease somewhat it additional new office construction continues to offer more attractive alternatives to remaining in present accommodations and if the general economy remains strong. Even if turnover rates change little, the volume of turnover will rise as the amount of occupied office floor space grows. A somewhat higher prospective rate of demolition seems likely in localities with older office buildings that cannot be modernized feasibly and that are becoming rapidly obsolete as more new buildings are completed with the latest in office facilities. A higher future demolition rate seems likely, too, if incomes of office occupants should rise faster than the real burden of rents in newer structures.

Finally, a lower volume of conversion may be in the offing in places where most structures readily suited for such changes have now been converted, so that fewer remain available for future work. In downtown Chicago, at least, no conversions have been reported since 1960. "Although more than half of the net office space added [through 1960] was created through conversion of non-office use, it is estimated that during the next 20 years only about one-fourth of all new additions will come through conversion." [5]

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[5] "Central Area Office Space Study, City of Chicago," *op. cit.*, p. 3.

Increasing Scale

The short history of office buildings has underscored the growing market dominance of a few large structures posing correspondingly large financing requirements. Each successive boom, it seems, has produced larger and more complex buildings "devoted to the manufacture of light, the circulation of air, the maintenance of a uniform temperature, and the vertical transportation of its occupants." [1] The evolution of a specialized form of structure known as the office building has dramatically illustrated a trend toward increasing scale of development that has been typical of many other types of income-producing real estate.

Office buildings are a relative newcomer to the urban scene. Booms in the production of free-standing buildings where "the affairs of a business, professional person, branch of government, etc. are carried on" go back little beyond the nineteenth century. Prior to this time, office buildings of any size appear to have been scarce indeed.

Pausanias, in his travels around Greece during the second century, A.D., made brief mention of "another portico . . . where stand the government offices of [the town of] Megalopolis, six in number." He also called attention to the market-place in Sparta where there were "the offices of the ephors . . . five in number." [2] In more recent centuries, a few small office buildings may have been erected to house such financial institutions as the Bank of Sweden, established 1668, the Bank of England (1694), or the Bank of France (1800).

But substantial output of office buildings apparently emerged only after the early 1800's. It responded to the slowly growing administrative needs of industrialized economies and centralized governments, and the divorce between places of residence and places of work. Public offices — initially accommodated in city halls, capitol buildings, palaces, and similar multipurpose structures — gradually developed as distinct kinds of buildings. Private offices, according to one writer, "began as accounting rooms within . . . the merchant's house, and evolved slowly towards specialized forms." [3]

Thereafter, office buildings continued to increase in scale and complexity, just as business and government activities did. Growing specialization in office-type activities placed a premium on the need for floor space in buildings designed specifically to accommodate them. Larger and larger buildings were erected in central business districts as developers tried to make the most of the advantages of location and scale, and advances in technology. Evidently, the disadvantages of scale proved less compelling.

Advantages and Disadvantages

These advantages of scale, on the demand side, include the fact that tenants will pay a premium rent in order to occupy larger buildings offering a variety of services and sheltering a variety of establishments. Larger buildings provide more room to group conveniently in one structure varied business or government establishments that are linked with each other or to a common market, thus facilitating face-to-face contacts among office personnel or with the public.

Take the case of Manhattan's proposed World Trade Center that will feature twin office buildings, each containing as much usable office floor space as the Pentagon Building, the headquarters of the Department of Defense in Washington, D. C. This large scale of development, according to the prospectus, will allow the Center to "consolidate as never before the public organizations, business firms, international corporations and ancillary services essential to the orderly handling of America's expanding exports and imports. The Center thus will be a convenient clearing house for the development, administration and expansion of United States trade with other nations — import as well as export."

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[1] Lewis Mumford, *Sticks and Stones* (New York: Norton, 1924), p. 163.

[2] Pausanias, *Description of Greece* (New York: Putnam's Loeb Classical Library), Books VIII and III.

[3] Percy Johnson-Marshall, *Rebuilding Cities* (Chicago: Aldine Publishing Company, 1966), p. 61.

Larger buildings can bring maximum rents because they can accommodate the widest possible range of tenant demand. They are usually able to house the very smallest to the very largest occupants. Growth in the amount of space typically used by the largest tenants, in turn, has stimulated an increase in the scale of office buildings adequate to house them. Today, the biggest buildings usually contain enough floor space to shelter the office force of even the largest local business or government organization.

Larger buildings, too, cater to the feeling that "the office makes the man." As in the 1920's, today "the erection of large office buildings emphasizes the significance of the greater size of structures. They make a certain appeal to pride; the organization which owns one gains prestige and advertising; the tenant likes to be known as occupying a large well-known building and citizens feel that large buildings are a symbol of progress."[4]

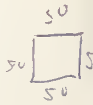
Greater concentration of office activities in one large building, however, can bring a disadvantage of scale. This is the threat of pedestrian or vehicular congestion, either within the structure or in its immediate neighborhood. Internal congestion may be minimized by substituting vertical for horizontal movement of persons and goods wherever possible. To do so effectively, of course, requires skillful management in selecting occupants whose activities tend to be complementary rather than conflicting.

The advantages of scale on the supply side of the market include the ability of larger buildings to provide a broader range of tenant services than smaller buildings can. These diversified services may be furnished at initial or recurrent costs that can be allocated among many occupants so as to minimize the aggregate burden. The Pentagon Building affords a dramatic case, with its 3.7 million square feet of net floor space for offices, concessions, and storage. The building's exceptionally large scale permits it to support a variety of supplementary service facilities, including "bookstore, bank, medical and dental clinics, post office, barber shop, clothing stores, laundry and dry cleaning, rail, air and local bus ticket offices, florist, bakery, drugstore, Pentagon Federal Credit Union, candy store, baggage lockers, Western Union telegraph office, optometrist, photographic store, news stand, jewelry store, information center, university education information center, Military Affiliated Radio Station, shoe repair shine shop, mailomats, and pharmacy."[5] Outside off-street parking is also provided.

The advantages of scale on the supply side also include the ability to absorb a few exceptionally high development costs for certain items that are feasible only if spread over a large total. They further include the ability to make the most of a strategically-located site by erecting a tall building on it.

Advantages of scale may be realized, too, by using larger rather than smaller sites. For one thing, larger usable areas per floor made possible by larger sites tend to be rented more easily. Also, larger sites may allow for interior auto parking which may not be accommodated on smaller sites if sufficient area is unavailable for ramps and turns. In view of the strong competitive attraction of interior auto parking, it is surprising to find that only 29 postwar competitive office buildings in Manhattan had underground garages of any size out of a total of 151 buildings that were completed, scheduled for completion, or had plans filed as of 1964.

Larger sites, in addition, permit a higher ratio of floor area (rentable space) to wall perimeter (a sunk cost). To take an oversimplified example, consider a square site of 50 by 50 feet. On this parcel, no more than 2,500 square feet of office space per floor could be enclosed by perimeter walls built along the lot lines and running a total of 200 feet. But suppose that four adjacent 50-by-50 foot sites were assembled into one parcel of 100 by 100 feet. Then a building occupying the entire site could enclose four times as much space per floor



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[4] From *Recent Economic Changes in the United States*, "Construction," by John Gries. Copyright 1929 by the Committee on Recent Economic Changes, of the President's Conference on Unemployment. Used by permission of McGraw-Hill Book Company.

[5] "The Pentagon," published under the auspices of the United States Army Service Center for the Armed Forces, The Pentagon, Washington, D.C. (1965).

(10,000 square feet) with only twice the exterior wall perimeter (400 feet).

Some savings in operating expenses could also be realized on a building occupying the larger site. Heating and air conditioning costs tend to decrease as the ratio of floor area to wall surface increases. These costs would generally average less per square foot in operating a 100,000-square-foot office building covering the 100-by-100 foot site than in operating a building with the same floor space erected on the 50-by-50 foot site.

Larger structures can be erected, of course, only by increasing the average size of sites, by building higher on given sites, or by designing structures that contain a higher ratio of usable floor space to the total. As office buildings have evolved, development of better techniques of site assemblage has apparently been relatively limited. Greater progress has been made in perfecting high-rise construction and in designing structures with relatively more usable floor space in relation to the total.

All three aspects — site assemblage, high-rise construction, and changed design — pose potential disadvantages of scale. Larger sites are often more difficult and expensive to assemble through private negotiation than smaller ones. Zoning regulations may require the superstructure to be constricted more and more as its height increases. Or they may have the effect of causing part of the total site to be set aside for use as a park or plaza — one of several forces making for larger office-building sites.[6]

Moreover, higher buildings may need larger sites, or may require disproportionate outlays for foundations. Or they may contain a larger share of interior floor space devoted to non-revenue-producing facilities like elevators and corridors. The Pentagon Building, with 17½ miles of corridors, has as much as 43 per cent of its gross floor area in nonrentable space (excluding offices, concessions, and storage).

Large scale development requires longer incubation periods between initial planning and completion.[7] Longer incubation periods — during which resources are usually committed irrevocably — pose greater uncertainties about final development costs, occupancy, and financing. Unanticipated costs or delays may be encountered at any stage of the process of assembling parcels, relocating site tenants, demolishing existing structures, digging new foundations, and erecting the superstructure. Unforeseen delays add to the costs of carrying a development financially. They also postpone the time the development reaches completion with a large chunk of floor space available for occupancy and hence capable of producing income. To minimize the risk of unfavorable changes in demand during the lengthy incubation period, it is obvious why efforts are made to lease-up speculative office buildings well before completion.

Site Assemblage

Within downtown areas, the supply of office sites is limited. In fact, demand for prime office floor space is usually concentrated within a relatively few blocks. In most of our major cities, as in the City of London, "proximity to the markets is of the greatest importance in the City [or in any central business district], which is divided into fairly sharply defined zones round the different markets. The importance to many firms of being in the proper district . . . [makes] . . . the demand for office space very inelastic."[8]

The location of downtown office building sites, accordingly, is as strategic as it is for other types of income-producing properties, if not more so. A distance of no more than a block or two can mark the difference between prime and secondary locations. Hence buildings in Manhattan may bear an address on Fifth Avenue or on Wall Street even though their main entrance may be around the corner on a side street.

The supply of prime downtown office sites can be increased by exploiting air rights in order to build above streets or other rights-of-way. The supply may also be expanded by converting into office use downtown parcels formerly used for other purposes. Conversion is usually possible, of course, only if the properties in question can be acquired through private negotiation. If conversion also involves the assembly of two or more adjacent parcels into a single larger site, there are further limits on what can be done.

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[6] As early as 1929, it was noted that "zoning ordinances often put a premium on buildings covering a large area which can take the best advantages of setbacks and other provisions for light and air." Gries, *op. cit.*, p. 241.

[7] Fisher, "Some Economic Aspects of Income-Producing Real Estate," *op. cit.*

[8] Ralph Turvey, *The Economics of Real Property* (London: Allen and Unwin, 1957), p. 35.

Problems of site assemblage in Manhattan during the postwar years have been discussed by Hoover and Vernon as follows:

> "One reason why office developers chose Park Avenue [first] in preference to some of the other main avenues for the intensive [postwar] development of new office structures was the fact that sites on Park Avenue could be accumulated so much more readily. For Park Avenue was lined with huge apartment houses, one or two to the block, while the other streets typically were covered by seven or eight small structures to the block.
>
> "The multiplicity of structures meant a longer planning span for anyone concerned with amassing a building site; the increased span represented an impediment to any corporation anxious to get on with the business of creating a new home for its central office, and it represented a major risk to any developer anxious to take advantage of a current demand for office space. Considerations of this sort outweighed questions of site costs." [9]

Private negotiation to assemble smaller parcels into larger holdings may result in upward pressures on site prices if small-site owners hold out for all they can get. Ordinarily, site costs may account for a third or less of total costs of developing a new office building. Thus a somewhat higher price paid for a site increases total development outlays less than proportionately.

A few dollars more paid per square foot to assemble a site of feasible size for an office building may accordingly seem worth the price, particularly if advantages of scale are involved. Over the postwar period, site prices have reportedly run as high as $400 per square foot in Manhattan for the block bounded by Park and Lexington Avenues between 51st and 52nd Street. One parcel in this block was acquired for as much as $525 per square foot, said to be the highest price yet paid for a sizeable Manhattan building site during the postwar period.

Public urban renewal programs have afforded a major postwar innovation in methods of assembling sites for office buildings. Urban renewal has spurred some new office construction by producing large cleared sites at attractive prices for redevelopment, although not all urban renewal sites are well located for new office buildings. It has given some further stimulus to new construction by reducing the local supply of lower-rent office floor space in older buildings during the process of clearing out run-down areas.

Urban renewal has facilitated the assembly of downtown office sites in many places. These include, among others, the cities of Baltimore, Boston, Cincinnati, Cleveland, Hartford, and Minneapolis. Through 1965, some 6,900 net acres in urban-renewal clearance areas had been slated for redevelopment with proposed new commercial uses, including some private and public office buildings in certain areas.

Over long periods of time, the potential supply of prime downtown office-building sites changes slowly with shifts in the location of the most desirable addresses. These shifts reflect cumulative changes in relative accessibility as well as in land uses. They open up new prime locations as well as render existing ones obsolete. As one writer has pointed out, "office building rents are, in the last analysis, determined by the building's strategic location with regard to the center of traffic. As a number of people passing the doors of a building increase or decrease, so fluctuates the earning power and hence the useful life of the building." [10]

High-Rise Construction

The Chicago fire of 1871 gave impetus to the perfection of high-rise construction techniques and to changed methods of design. After the fire ended, opportunities to rebuild abounded. They were seized imaginatively by architects later identified with the Chicago school of architecture. These architects created a "form of building which had no counterpart in the past . . .," for which the term "commercial style" was coined.

> "In little more than a decade after the fire they [the architects of the Chicago school] invented and mastered the modern technique of riveted steel framing and were thus able to develop the office building, hotel, and apartment

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[9] Edgar M. Hoover and Raymond Vernon, *Anatomy of a Metropolis* (New York: Doubleday and Company, Anchor Book, 1962), pp. 103. Quoted by permission of The Harvard University Press.

[10] Earle Schultz, Vice President, National Association of Building Owners and Managers, "The Effect of Obsolescence on the Useful and Profitable Life of Office Buildings," Supplement to April-May Bulletin of the Chicago Building Owners and Managers Association, 1922.

> block as we know them today. . . . The elevator made such a [many-storied] building practical from the standpoint of easy movement to upper floors. Fire-proof construction made it safe." [11]

Modern "cloud-scrapers," as they were first called, enabled downtown sites to be exploited more intensively by multiplying the ground area many times. Prior to their appearance, techniques of construction requiring the use of weight-bearing walls limited building heights to less than 10 stories. But thanks to new construction techniques, the Empire State Building, completed 60 years after the Chicago fire, contained as many as 102 stories with a total rentable floor area that was more than twenty times the area of the site. Each of the 110-story twin towers now under development in Manhattan's World Trade Center will contain a rentable floor area about 80 times the ground area on which it rests.

But the advantages of making the most of a particular site by building offices in the sky have been offset in part by zoning ordinances. Many codes restrict the intensity of development by setting a maximum permitted ratio of gross floor area to total site area. In Manhattan, the limit is now almost invariably less than 15 to 1. The World Trade Center development as a whole will conform to this limit by including a large open plaza.

Design

As a result of changes in design, postwar office buildings have generally produced more rentable floor space per square foot of gross building area than prewar ones. According to one writer:

> "In the early years of this century, office towers generally terminated in Corinthian temples or Gothic spires. The pyramidal, or 'wedding cake,' form next became customary for larger buildings, principally because of the set back requirements of zoning laws, and partially because the need for light and air limited the distance between the exterior wall and the elevator core thus decreasing the size of the upper floors.
>
> "By the late 1940's, when adequate air conditioning and artificial lighting became available, the progressive decrease in core areas no longer dictated a corresponding decrease in over-all floor size. The result was the modern 'slab' building, with uniform size floors top to bottom which provided larger rentable floor areas on the desirable upper floor." [12]

In Washington, D. C., "the ratio of net rentable area has been increased by the use of thinner exterior walls and partitions, by providing smaller, more functional lobbies and corridors, and by reductions in the relative size of service areas." [13]

With larger sites, greater height, or changed design — or a combination of these elements — typical office buildings completed in the postwar years have contained more floor space than those built in previous booms. New competitive office buildings completed in Manhattan since 1947 have provided an average of three-fifths more rentable floor space than buildings erected between 1925 and 1933. These postwar buildings have contained more floor space even though they are "squatty with setbacks, and have fewer stories than the tall tower type buildings of the twenties," according to the Real Estate Board of New York.

The larger average size of postwar buildings in Manhattan reflects the fact, however, that "new architectural techniques have yielded more rentable floor area per construction unit. There are some buildings that occupy the entire square block while others are block front. . . . All of the postwar buildings are 100 per cent air-conditioned. This feature coupled with modern lighting techniques have made possible the utilization of formerly wasted interior space." [14]

In downtown Chicago, new office buildings erected since 1946 have contained about three-fifths more floor space per structure, on the average, than those built during the 1920's. In fact, the average size of new office buildings has increased during nearly every decade since the 1870's. Buildings completed since 1960 have averaged 7¾ times the size of buildings erected nine decades earlier, according to data of the Building Managers Association of Chicago. (Table 1)

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[11] Carl W. Condit, *The Chicago School of Architecture, A History of Commercial and Public Building in the Chicago Area, 1875-1925* (Chicago: University of Chicago Press, 1964), pp. 12, 11, 25. Copyright 1964 by The University of Chicago.

[12] Lyndon H. Lesch, "Office Building Development," *Journal of Property Management*, May-June, 1965, p. 131.

[13] Washington Board of Realtors, "Office Building Construction, Washington D.C., 1960-1966," p. 9.

[14] Real Estate Board of New York, *op. cit.*, p. 10, as prepared by the Board's Research Department.

In terms of size, competitive office buildings in Manhattan have been exceptional — as have many other features of that market. The average number of square feet of floor space in Manhattan's postwar buildings has been over 1½ times larger than the average for buildings in Chicago or Washington, D. C. In part, the difference may reflect somewhat different methods of measuring floor space.

No less than 10 buildings — each with one million square feet or more of office floor space —have been completed in Manhattan since 1945. Nowhere else have buildings of this size yet appeared. In 1966, however, several were under development in other cities.

Table 1

New Office Buildings In Downtown Chicago

Period	No. of buildings	Total sq. ft. rentable floor space (1000)	Average rentable sq. ft. of floor space per building	
			Number	Index*
1872-79	9	372	41,824	100
1880-89	18	1,286	71,462	173
1890-99	39	3,454	88,555	214
1900-09	28	3,244	115,842	281
1910-19	45	7,422	93,898	227
1920-29	74	12,930	174,730	423
1930-39	12	2,469	205,749	498
1940-49	2	209	104,691	254
1950-59	13	2,603	200,242	485
1960-65	14	4,448	317,719	770

* 1872-79 = 100.
Source: see Appendix.

Capital requirements to finance new office building investments have expanded with increases in development costs per square foot and with increases in the number of square feet of floor space per structure. They have also expanded with the emergence of planned centers consisting of two or more structures built as part of a unit in order to take greater advantage of economies of scale. Of these, the 14-acre Rockefeller Center, opened in Manhattan in 1932, was the first private one in the United States. Among postwar examples have been the Golden Triangle in Pittsburgh, the Back Bay Center in Boston, and Penn Center in Philadelphia. Suburban executive office parks, mentioned earlier, provide other examples.

Numerous public office projects have been planned and carried out more or less as a unit. In Washington, D. C., the Federal Triangle is one example. A group of federal office buildings is now in progress in the southwest redevelopment area. In Manhattan, the 16-acre World Trade Center development of the Port of New York Authority, to cost over $500 million, will include not only two 110-story office towers but also a hotel, parking garage, plaza, and "international shops and restaurants."

Demand

A strong upsurge in the aggregate demand for office floor space has supported the postwar construction boom. Growth in office occupancy by businesses and governments has reflected a number of underlying changes. Broad expansion in the general economy, differential increases in the floor space requirements of various types of establishments, and a shift from production toward service activities have all been influential. So has an increase in the use of office floor space per occupant that has resulted partly from the need to house more office machines and equipment.

Not only has the number of workers in office buildings and their per-capita use of office floor space increased during the past 20 years, but there has also been a marked demand for space of higher quality. One rough index of the extent of upgrading — rentals in private office buildings with reported operating experience —stood at 213 in 1965. This compared with a level of 100 in 1946.

Background

Many types of occupations and industries make use of office floor space. An "office," indeed may be a place of work for any one of numerous kinds of establishments.[1] Hence, aggregate demand for office floor space is not tied exclusively to the fortunes of a single industry, occupation, or part of the economy.

Not all office demand focuses on office, bank, or professional buildings. Establishments engaged in, say, finance do not necessarily use office floor space located in office buildings. Some of these firms take floor space in structures designed primarily for retail or other use. Many clerical workers occupy office space in factories, loft buildings, court houses, or other structures not built predominantly for office use. Doctors, business consultants, and craftsmen often use their own residences as a place of work.

As a result, there is no invariable relation between the volume of activities requiring office floor space and the use of floor space in office buildings. There never has been. In fact, activities performed by government or business involving office work of an administrative, executive, or clerical nature predate office buildings by centuries.

> "Administrative activity is as old as government itself. . . . The emergence of a separate function or machinery of administration, however, is a product very largely of the nineteenth century. The new task thrust upon or assumed by government as a result of the new conceptions and broader requirements of communication, education, public health and public welfare hastened the process of political reorganization and functional differentiation which marked the process of the industrial revolution." [2]

> "Though clerks and clerical work have existed for centuries and large groups of clerks for decades, it is only in recent years that the management of clerks or office management, has become a problem of importance. . . .
>
> "The change was necessitated by the exigencies of an ever-growing large-scale industry. While business organizations were small, and direct contract existed between producer and consumer, beyond simple bookkeeping few records were required, there was little written communication between sections of an organization, and consequently few clerks were needed. All this was changed, and today the office has attained a position of major importance in business." [3]

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[1] The diversity of office demand is underscored by the 22 distinct types of activities classed under "offices" in U. S. Bureau of Public Roads and Urban Renewal Administration, *Standard Land Use Coding Manual* (Washington, D. C.: USGPO, 1965), p. 24. Their functions range from financial, agricultural, insurance, real estate, advertising, news, and legal to medical, executive, legislative, judicial, and others.

[2] Reprinted with permission of The Macmillan Company, from "Administrative Areas," *Encyclopedia of the Social Sciences*, I. Copyright 1937 by The Macmillan Company. p. 450.

[3] "Office Management," Encyclopaedia Britannica, XVI, (1964), p. 717.

Changes in Demand

par occupancy

The amount of floor space occupied in office buildings accordingly changes over time. It may vary with fluctuations in the total volume of office activities and office employment. It may also vary with shifts in the share of the total that is accommodated in office buildings. Finally, it may vary with shifts in the average amount of floor space used in office buildings per office worker.

Postwar increases in all three variables, it appears, have combined to produce a strong upsurge in demand for additional office floor space. Several rough indicators of these probable trends may be cited in the absence of precise comprehensive measures.

Office Activities and Employment

Postwar growth in office activities has been stimulated in two ways. A derived stimulus has come from the need to service the paperwork and administrative requirements of supervising blue-collar workers. The number of these blue-collar workers increased by more than an eighth between 1947 and 1965. Meanwhile, a direct stimulus has come from an expansion in financial, government, professional, and other activities involving paper transactions and executive decisions.

To facilitate the expansion in office activities, use of office supplies, machines, and equipment has flourished since World War II. Physical production of fine writing paper, including office stationery and mimeograph paper, has doubled during the postwar period — about in line with the growth in aggregate physical output of all types of goods and services. Domestic and foreign shipments of new wood and metal office furniture have nearly tripled in dollar value. Shipments of new computing machines, typewriters, and duplicating and office machines have increased fivefold in value, without making allowance for any increase in operating capacity.

1) Despite greater use of technological advances in performing office work, employment of persons in office-type occupations has increased sharply, too. The number of persons in office-type occupations about doubled between 1940 and 1960. As a share of the total experienced labor force, they came to account for as much as a sixth. (Chart 4) Since 1947, employment of clerical and kindred workers — a rough proxy for office-related work — has increased by half. The number of all other types of workers increased by less than a fourth.

Activities in Office Buildings

2) The shares of total office activities and total office employment accommodated in office buildings have probably increased over the postwar years, continuing a trend that goes back a century or more to the beginnings of modern office buildings. Since 1946, general business prosperity has undoubtedly worked further in this direction. Pointing to Manhattan's office boom, Hoover and Vernon wrote:

> "When times were poor in the 1930's, many lines economized on rental costs by doing their selling out of loft buildings—buildings designed for light manufacture. When business boomed in the early postwar period, such lines were obliged for a time to cling to their old loft quarters because of the acute shortage of space. But, as new office buildings opened up, many salesrooms eagerly switched from the aging loft structures they had long inhabited to more elaborate—and more expensive—space in office buildings."[1]

The shares of total office activities and total office employment performed in office buildings may also have increased with the growing extent and complexity of public and private administrative work. If so, these changes caused more and more business firms to separate their office forces from their other workers during the postwar years. More than one industrial corporation has come to house its office workers separately in a new monumental office building erected by or for it.

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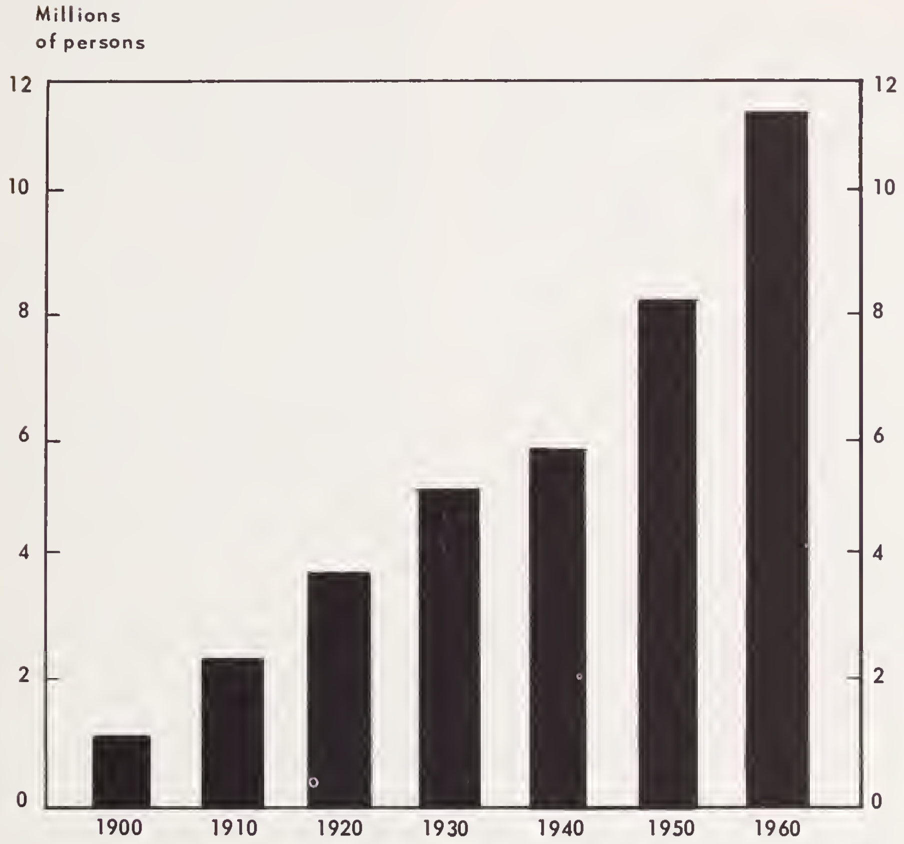
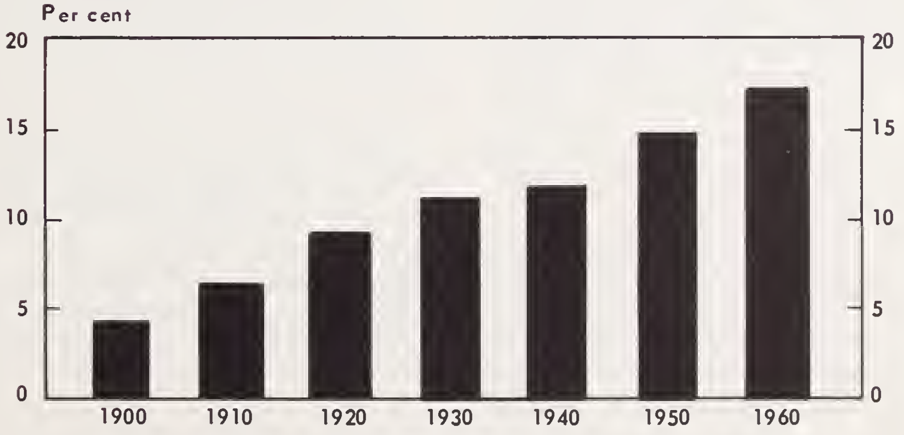
[1] Hoover and Vernon, *Anatomy of a Metropolis, op. cit.*, p. 107.

Chart 4

Persons with Selected Office-Type Occupations



As Share of Experienced Labor Force



SOURCE: See Appendix

Underlying conditions favoring this separation can be seen in the disparate trends in production and nonproduction employment. In manufacturing industries, the number of production workers has changed little since 1947. Meanwhile, the number of nonproduction employees (including supervisory, office, and other workers) has doubled.

3) *Office Floor Space Per Worker*

The average amount of office floor space used per employee in office buildings appears to have increased during the postwar period. Such a trend might be partly expected from the rapid evolution of office machinery and equipment, including widespread recourse to duplicators and computers. Expansion in the actual use of such capital inputs — plus plans for even more — make it necessary to reserve sufficient office floor space for machines as well as for workers. Pressures consequently grow toward increased use of office floor space per occupant.

Upgrading in Employment. The trend toward increased per capita use of floor space also reflects the postwar rise in the share of the total labor force accounted for by professional and technical personnel. Partly as a nonwage employment inducement, professional and technical personnel who work in office buildings are usually assigned more office floor space per person than clerical workers receive, even after allowance is made for office machines and equipment.

The number of white-collar workers in "professional, technical, and kindred" occupations has grown since 1947 by even more than the number of workers in "clerical and kindred" occupations. As a result, the ratio of professional to clerical workers has risen sharply. In 1947, there were an average of 53 professional workers for every 100 clerical workers. By 1965, the average reached 80 per 100. This uptrend reinforced the tendency toward greater per-capita use of office floor space.

A postwar rise in the ratio of supervisory to nonsupervisory workers, however, has not been experienced by all types of establishments using office floor space. Mutual savings banks insured by the Federal Deposit Insurance Corporation reported an increase, as the ratio of active bank officers to other bank employees rose from 1 in 9 in 1946 to 1 in 7 in 1965. But insured commercial banks reported a slight decline in the average ratio of about 1 officer to 6 other employees. This downtrend presumably reflected the special fact that the number of commercial-bank home offices has increased little since World War II, whereas the number of branch offices has more than tripled.

Data. Information on the amount of office floor space used per office worker is available only for certain privately-owned rental office buildings reported by members of the National Association of Building Owners and Managers (NABOM). The average amount of rented office floor space per office worker in these buildings has increased by nearly a seventh over the postwar years. In 1946, the average was 109 square feet per person. In 1965, it was 129. (Chart 5)

This reported uptrend in the use of rented office floor space per office worker has largely reflected the growing influence of newer buildings in the NABOM series. The reports have consistently shown an above-average use of office floor space per worker in newer buildings.[2] In 1964, the use of office floor space per worker in buildings aged under 10 years was a sixth above the average reported for buildings of all ages.

Greater per-capita use of floor space in newer buildings might be expected for several reasons, despite the higher rents. One explanation is that new buildings are occupied solely by recent movers, many of whom move precisely because their former quarters in older buildings were overcrowded. The new tenants may have spread out in their new accommodations in anticipation of crowding up later. Older buildings, on the other hand, house a mixture of tenants who have moved in at various earlier dates. Since moving in, many tenants may have expanded their labor forces and intensified their use of floor space.

Spreading out in new buildings may also reflect the availability of rentable floor space for uses that could not have been accommodated as well in former quarters, if at all. Floor space in new buildings may be readily adaptable to such uses as private libraries, employee cafeterias, executive dining rooms, or computer systems. In older buildings, structural layouts

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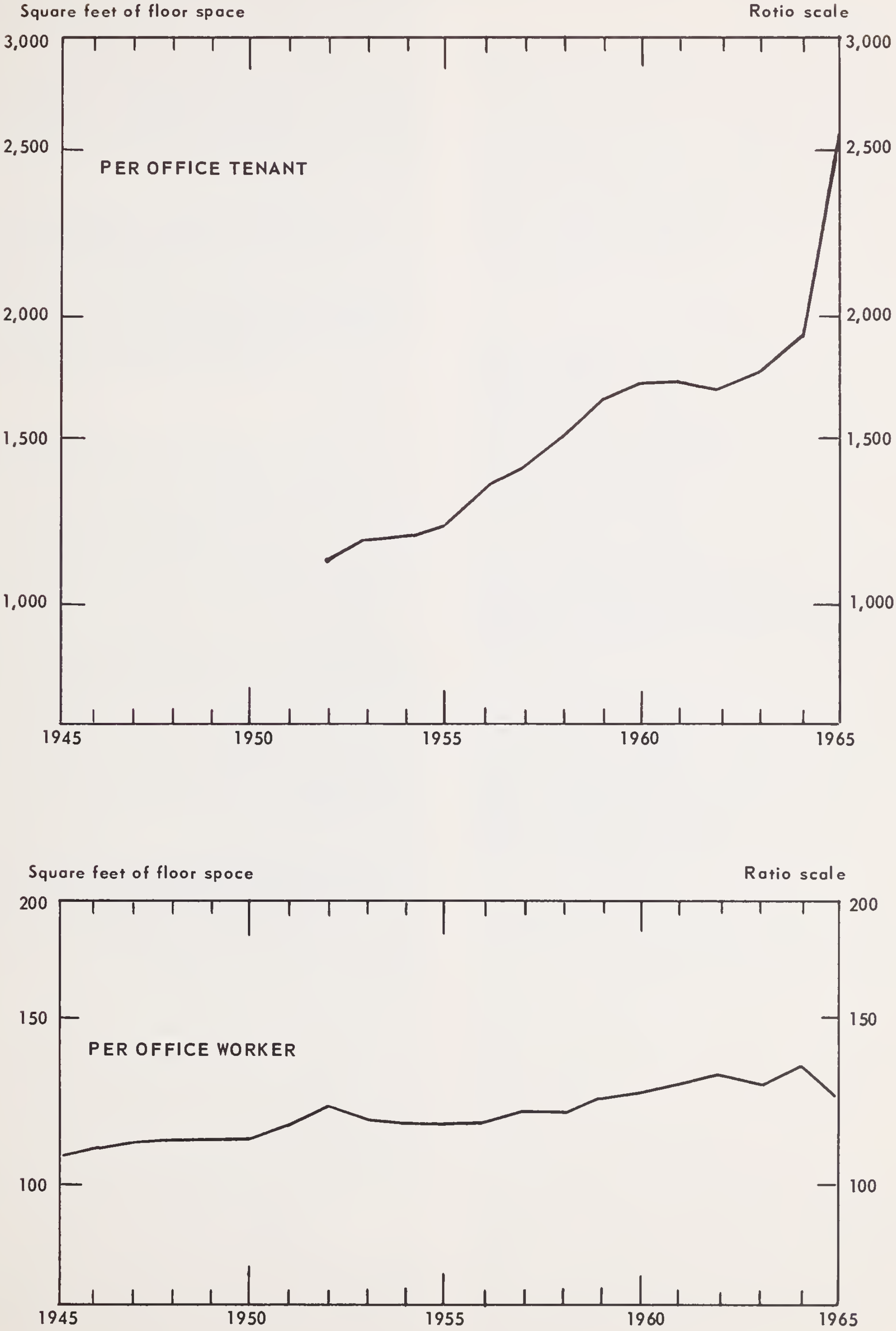
[2] But the 1965 report, for the first time since the data began to be collected, showed a below-average per-worker use of office floor space in newer buildings. This is one of several difficult-to-explain findings in the 1965 Experience Exchange Report.

Chart 5

Rented Office Space Per Tenant and Per Worker



SOURCE: See Appendix

are often less flexible, particularly when extensive improvements made by former tenants remain in place.

Office Management

Expanding office work forces and increased per-capita use of floor space in office buildings have put a premum on efficient office management. Hence consulting firms, educational courses, and publications about the management of office personnel and records have proliferated during the postwar period. So have sales of compact office furniture, equipment, and machines designed to take up as little floor space as possible.

Efficient use of office floor space has been needed, too, in order to counter higher office rents resulting in part from an upgrading in quality. In 1947, the annual office rental paid per office worker in NABOM-reported office buildings averaged $260. By 1965, it averaged $553. The increase of 127 per cent since 1946 reflected a sharp rise in average rent paid per square foot of floor space and a smaller increase in the amount of floor space rented per office worker, including space for office machines and equipment.

For many private firms, higher occupancy costs have been offset in whole or in part by rising business income and profits since 1947. Premium rents paid in new buildings have often been justified to some extent as outlays for advertising or customer relations. Also, such rents have ordinarily constituted a minor share of total business expenses. And the rents have been fully deductible against income for federal income-tax purposes.

Outlook

An active future demand for office floor space is suggested by the outlook for employment in office-oriented occupations, provided general economic activity continues strong. Estimates by the United States Department of Labor project an acceleration in employment of both professional and clerical personnel. A further increase is also anticipated in the ratio of professional to clerical workers, reaching a level of about 84 to 100 by 1970, compared with 80 to 100 in 1965.

> "Of fundamental importance is the conclusion that the fastest growing occupations during the second half of the present decade will continue to be those in the professional and technical, clerical, and the service worker categories. . . . Growth in the various occupational groups is expected to continue to reflect the increasing service orientation of demand in our highly developed economy. . . .
>
> "In the 1965-70 period, professional, technical, and kindred occupations will continue to be the most rapidly growing field. . . .
>
> "Clerical workers, the largest single category in white-collar employment, constitute the second fastest growing occupation category. . . . The ultimate growth rate of these workers will undoubtedly be affected by the rapid technological developments in the fields of computers, office equipment, and communication devices. Whether the effect of these technological improvements will in time retard clerical employment growth or whether the demand for processing the increased information becoming available through these improvements will accentuate growth in their ranks is yet to be fully determined."[3]

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[3] U. S. Department of Labor, "Manpower Report of the President and A Report on Manpower Requirements, Resources, Utilization, and Training," transmitted to the Congress, March 1966, p. 44. The projections for 1970 are based on the assumption of a 3 per cent unemployment rate.

Special Aspects of Demand

The demand for floor space in office buildings has several aspects that are noteworthy. One is the extent of market demand that comes from public occupants. Another is the impact of branching and mergers by both public and private tenants. A third is the degree of discontinuity in the growth needs of individual establishments. All three aspects make projections of local floor space requirements less certain than they would otherwise be.

1)

Public Occupancy

Demands for office floor space spring from public as well as from private sources. Occupancy of office space by federal, state, and local governments and their agencies, in fact, is a prominent feature of the market. Few other types of income-producing properties have any public tenants.

Local prospects for new construction and leasing of privately-owned office buildings, therefore, depend in part on anticipations about the future floor space needs of public establishments. They also depend on anticipations about how much of the total public need for office floor space will be met by leasing rather than by occupying new or existing publicly-owned buildings. These uncertainties are almost unique to office-building markets.

The degree of public occupancy is surprisingly large in some localities. It can place federal, state, or local governments in strong bargaining positions to influence the tone of the entire office market, including the terms of rental transactions. To cite an extreme example, the Federal Government probably owns about as much office floor space in the Washington, D. C., area as all private landlords do. It also leases roughly a fifth of all floor space in all privately-owned office buildings.

Throughout the nation, the largest single owner-occupant and tenant of office floor space is the federal government. Two major federal organizations—the General Services Administration and the Post Office Department—together owned about 100 million square feet of office-type floor space in 1965. They rented another 100 million or so square feet. Their aggregate annual rental payments to private landlords exceeded $180 million.[1]

Another important public user of office floor space is the State of New York. It owned 4.1 million square feet of office floor space at the end of 1965. It also leased some 4.0 million square feet in privately-owned office buildings at an annual rental of $13.7 million. Ownership of office floor space by New York State increased by about 1.5 million square feet between 1960 and 1965.

A major local government user of office floor space is the City of New York. Departments and agencies directly under the jurisdiction of the Mayor owned and occupied about 8.5 million square feet of office floor space at the end of 1965. They leased approximately 5.3 million square feet in privately-owned buildings at an annual rental of $13.1 million. Between 1960 and 1965, ownership of office floor space by these departments and agencies was unchanged; their leasing of privately-owned floor space increased by 2.6 million square feet.[2]

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[1] Based on reports from the two agencies. Other federal office floor space is under the jurisdiction of the Architect of the Capitol; there is also floor space in the building occupied by the Bureau of Engraving & Printing, and the Treasury Department main building and annex. The extent of federal ownership, leasing, and management of real estate, including office buildings, is indirectly suggested by the length of Title 40 of the *United States Code* (1964 edition). This Title —which relates to federal public building, property, and works—covers 135 pages.

[2] Data for New York State and New York City are based on letters to the author. The New York City data exclude office floor space owned or leased by such agencies as the Port of New York Authority and the New York City Housing Authority. The Port of New York Authority, of course, owns the World Trade Center, now under development in Manhattan, which is scheduled to contain over 7½ million square feet of usable office floor space.

Chain Occupancy

There is widespread demand by individual public or private users for floor space in office buildings located at more than one address. Chain occupancy may occur within the same metropolitan area, among different areas, or both. Decisions by large floor space users about whether, where, and when to decentralize or recentralize can obviously have far-flung consequences for local markets. They are a means by which the effects of isolated economic changes may be transmitted into many other areas to produce unexpected waves or shallows in demands for additional office floor space.

7 Federal, state, and local governments are among the important chain users of office floor space. So, too, are home and branch offices of business corporations and financial institutions. Office demand by nationwide business firms and life insurance companies focuses particularly on New York City and Chicago, and to a lesser extent on such regional financial or administrative centers as Atlanta, Boston, Dallas, Denver, Hartford, Los Angeles, Pittsburgh, and San Francisco. Linked to these dominant types of establishments are many local or national consulting and service concerns like advertising agencies, commercial banks, and legal firms.[3]

Postwar expansion in chain occupancy by stock exchange firms and banks has given some stimulus to the boom in new office construction. Not all such demand, however, has been accommodated in office buildings, whether owner- or renter-occupied, or new or old.

Among members of the New York Stock Exchange, the number of main offices has increased by a tenth since 1946 to reach a total of 651 at the end of 1965. Meanwhile, the number of domestic branch offices has tripled to a total of 2,880. Altogether, the three largest brokerage houses operated a combined total of more than 300 domestic branch offices at the end of last year.

Much the same picture emerges for mutual savings banks, savings and loan associations, and commercial banks. The aggregate number of home offices of these institutions changed little between 1953 and 1965. But the number of their branches tripled. (Chart 6)

By the end of 1965, the three largest mutual savings banks operated a combined total of 30 branches. The three largest savings and loan associations had a total of 64 branches. The three largest commercial banks operated more than 1,120 domestic branches.

Each year, a number of old branch offices of commercial and savings banks are moved. Some go into new buildings. Between 1961 and 1965, changes in title, location, or name of location were reported for more than 2,000 existing bank branches, according to data of the Federal Deposit Insurance Corporation. The annual rate of movement during these years ranged between 2 and 5 per cent of the number of branches in existence at the beginning of the year.

Mergers

Business mergers and acquisitions have given some further stimulus to the postwar office boom. Some mergers of two business firms or the acquisition of one firm by another concern are eventually followed by consolidating the separate central offices formerly maintained by each of the two individual firms. The amount of headquarters office floor space occupied after consolidation may be no larger — or may be smaller — than the total number of square feet of floor space that both firms occupied separately prior to merger, whether in one or several metropolitan areas. But consolidation may well create a need for a larger contiguous amount of office floor space than either firm formerly used. This is a requirement that new office buildings can meet particularly well.

Recent business mergers have probably been relatively less numerous than those during the 1890's, the early 1900's, and the 1920's. Nevertheless, the reported number of postwar mergers has increased as the general business population and the general economy have grown. In fact, "the merger movement has pushed into postwar heights and affected a wide spectrum of industries with dairy products, paper, chemicals, and petroleum, aero-space-electronics, motors, textiles, and chain food distribtion most prominent."[4]

Among manufacturing and mining corporations alone, nearly 11,000 mergers and acquisi-

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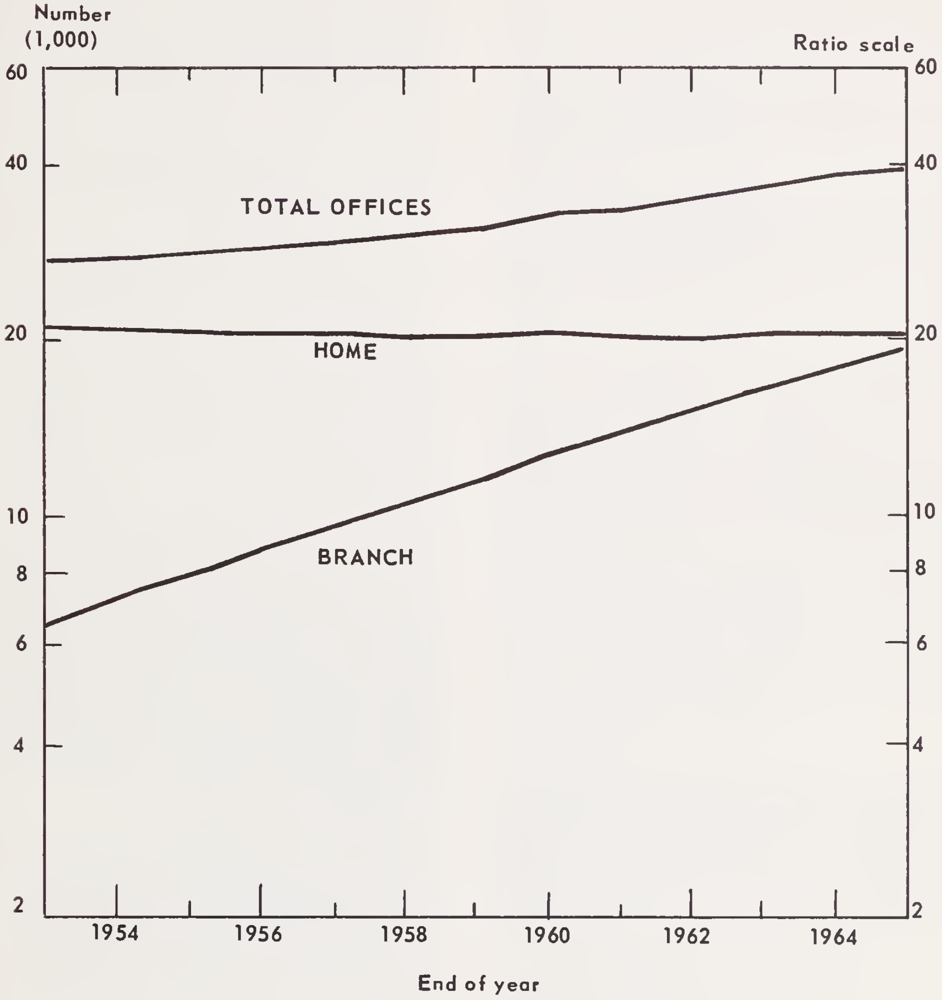
[3] Postwar tendencies of life insurance companies toward decentralization and suburbanization are detailed in Edgar M. Horwood and Ronald R. Boyce, *Studies of the Central Business District and Urban Freeway Development* (Seattle: University of Washington Press, 1959).

[4] House Select Committee on Small Business, "Mergers and Superconcentration," staff report, 1962.

Chart 6

Offices of Banks and Savings and Loan Associations



SOURCE: See Appendix

tions have been recorded by the Federal Trade Commission since the end of 1946. The pace of such mergers has continued to rise. Between 1961 and 1965, the number of mergers was a fourth larger than the 1956-60 total.[5] Even so, reported mergers and acquisitions in any one year were probably equivalent to less than 0.3 per cent of the number of manufacturing and mining concerns in operation.

Mergers of commercial banks and mutual savings banks have also given some support to the construction of new office buildings. Bank mergers — including absorptions and consolidations not involving financial aid by the Federal Deposit Insurance Corporation — exceeded 2,600 between 1947 and 1965. The average annual rate of merger approximated one per cent of all banks in operation at the beginning of any year.

Growth of Firms

An important source of demand for new office floor space has come from the growth requirements of existing firms other than through branching. A rough index of expanding demand from this source is the amount of floor space used per occupant in rental office buildings for which reports have been made to the National Association of Building Owners and Managers.[6] In 1965, the average office tenant occupied 2,622 square feet of floor space —adequate to accommodate about 21 office workers. This average was more than twice as large as in 1952, when a figure was reported for the first time. (Chart 5)

The timing of moves to consolidate or expand office work forces, however, can be controlled to some extent by crowding up at first and then by spilling out into other buildings. The process of crowding and spilling of demand may eventually come to focus in an urgent need to bring operations together at a single address. It may lead to rapid changes in demand for fairly large contiguous amounts of office floor space in one locality, despite the small amount of floor space reportedly occupied by the average rental tenant.

Demands for floor space to consolidate the office operations of larger firms may often have to be met by new construction, particularly in view of the low rate of turnover of space in older buildings. Office floor space made available annually through tenant turnover, plus long-term vacant floor space in existing buildings, comes in varied amounts of contiguous square feet of floor space per available location. But tenant demands for high-quality office floor space to meet consolidation or expansion requirements may not invariably match chunks available in older structures. Moreover, some chunks in existing buildings may be offered only on an "as-is" basis with existing partitions and other improvements of former tenants still in place.

All these considerations may channel demands for floor space to meet consolidation or expansion needs of large firms into new construction to what may be an unusual degree. Only in a new Manhattan office building, for example, could the J. C. Penney Company have leased at one address 31 contiguous floors with 850,000 square feet of floor space. An even larger lease was signed in 1966 when the First National City Bank agreed to rent an entire yet-to-be-completed building of some 870,000 square feet at 111 Wall Street.

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[5] "The FTC is now in the process of retabulating mergers and acquisitions back to 1955 on the basis of different criteria. When the new data become available, they will probably show that, for the period between 1955 and 1963 the number of mergers has been understated by from 300 to 500 per year." Senate Select Committee on Small Business, *Fifteenth Annual Report,* (1965), p. 5.

[6] These data reflect reports of variable coverage, almost exclusively for rental buildings located elsewhere than in New York City. Their illustrative trend is probably more indicative than their level. They exclude, of course, all owner-occupied buildings not primarily for rent. No national or local data appear to be available on the range of variation around this average.

Financing, Leasing, and Operation

The financing, leasing, and operation of income-producing properties are interrelated. This relationship is striking in the case of office buildings.

To underwrite the postwar office boom has required a large supply of loanable funds, despite widespread construction by owner occupants who may rely heavily on their own financial resources. Ample capital has generally been available for office-building collateral on terms that favored borrowers precisely because long-term occupancy commitments were obtainable from tenants presumed to be financially strong. Current income to repay the loans has ordinarily come solely from net property revenues whose volume has depended partly on the success of leasing efforts.

Monetary policy has undoubtedly influenced all three aspects. It has affected the availability as well as the cost of credit for office-building development, but to a lesser extent than for credit advanced against new single-family homes. It has also affected the willingness of lenders, developers, and tenants to commit ahead on office buildings for loanable funds, new construction, and occupancy. Finally, it has affected the present value of office-building collateral by influencing expectations about the future course of net operating income and by influencing the level of rates used to discount such income.

Financing

The postwar boom in office buildings—featured by a further increase in average scale of development—has generated growing demands for capital financing. Annual gross requirements for the construction of new private buildings (including additions and alterations) apparently increased in all but two postwar years. By 1965, estimated outlays for new private office-building construction, excluding land, ran twice as high as in 1956 and four times as high as in 1950.[1] (Chart 1) Much the same relative increases probably obtained for publicly-built structures. Nearly all these new facilities involved recourse to debt financing for most, if not all, of the capital expended for land as well as for structures.

Additional capital financing has also been needed to facilitate the market exchange of older privately-owned office buildings. As in the case of hotels and motels, turnover of office-building ownership has probably expanded over the postwar period. For one thing, there has been an increase in the number and average value of existing office buildings potentially available for sale. Also, turnover of ownership of older structures may have been stimulated to some extent since 1954 by changes in Federal income-tax laws and regulations applicable to depreciable real estate.[2] Finally, turnover may have been augmented by a postwar growth in the types of private owners likely to acquire office buildings, including syndicates, real estate corporations, and real estate investment trusts.

Nevertheless, the average rate at which ownership of office buildings changes hands still appears to be quite low. In part, the low turnover rate reflects the widespread extent of publicly-owned buildings, which are almost never sold. Such buildings accordingly pose no repeated demands on capital markets for additional funds that may be needed to finance resales.

But turnover of ownership appears to be

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[1] In contrast, outlays for new private nonfarm residential construction in 1965 were only 1½ times as high as in 1950 when the first housing boom was already in process.

[2] For a review of these changes, see Shipp and Fisher, "The Postwar Boom in Hotels and Motels," *op. cit.*, pp. 28-37. The investment tax credit allowance for business machinery and equipment, as well as the double-declining balance and sum-of-the-digits methods of computing depreciation on new or reconstructed real estate, were suspended on October 10, 1966, through December 31, 1967.

slow even for privately-held buildings. Open-market sales of private office buildings in Manhattan, for example, were relatively less frequent between 1959 and 1965 than sales of private residential properties, even during a period when rent control was still in effect for many dwellings.[3] Open-market sales of office buildings averaged only 3 per cent annually of the number of such structures on the tax rolls, and 2 per cent of their total assessed valuation. In contrast, residential properties turned over nearly twice as fast on the average.

No current information is available about how these office-building sales were financed, or about how much borrowed capital they needed. Not all sales, of course, require additional flows of capital funds. Some may involve the exchange of credit instruments like purchase-money mortgages. Others may represent outright exchanges of property ownership solely for tax or other reasons.

The long period of ownership of private office buildings in Manhattan — averaging 30 years or more — may be explained in part by the wide extent of owner occupancy. Once completed, buildings occupied by their owners may be held off the sales market for decades. Long periods of owner occupancy may reflect in part an unwillingness to leave the goodwill or prestige built up at a particular address. Also, rental buildings in the hands of long-term investors, including estates, seldom are sold. One study of real estate investment experience concluded, in fact, that "there are larger numbers of long-term holders of real estate than is commonly assumed, at least in New York City and other large metropolitan centers." [4]

It appears, then, that ownership turnover of office buildings has been minimal. Sales of buildings held by private owner-occupants and by long-term investors have been infrequent. Their low rate of turnover has outweighed the presumably more rapid exchange of structures held speculatively for maximum short-run income-tax shelter or capital gain.

Occasionally, privately-owned buildings may be refinanced. In doing so, they may absorb some incremental amounts of credit or funds. Speculatively-held buildings, in particular, may be refinanced more often than others. Refinancing may occur as soon as property earnings increase enough to justify a larger loan, provided early refinancing is allowed under existing loan agreements. Or buildings may be acquired for speculation under financing involving an amortized first mortgage plus one or more junior mortgages requiring periodic payments solely toward interest. In these cases, refinancing of all outstanding debt into one first mortgage may take place as soon as the existing first mortgage has been paid down by the amount of the junior loans.

Examples of junior financing are cited from time to time in the press. On May 9, 1966, for example, *The New York Times* reported that the building at 72 Wall Street in Manhattan was sold for approximately $10.6 million. The purchase was said to be subject to an existing first mortgage of about $5.5 million. There was also a second mortgage of $1.2 million and a third mortgage of nearly $2.0 million.

Sources and Instruments. Sources and methods of financing office buildings vary widely. Life insurance companies, mutual savings banks, and pension funds dominate national markets for individual chunks of capital needed to finance large private office buildings or projects. Local lenders like commercial banks and savings and loan associations may take an active role in financing smaller structures that account numerically for the bulk of all private office buildings.

Commercial banks, individuals, partnerships, and trusts account for a large share of all private holders of federal and municipal obligations that may be issued to finance publicly-owned office buildings. Of all state and local government office and court buildings, "in the past the majority, or 70 per cent, . . . have been financed by tax-exempt municipal bonds. Federal grants have accounted for about 10 per cent of the cost of these facilities. Another 15 per cent of the cost has come from direct appropriation from tax sources, particularly used in the case of State financing. The remaining 5 per cent came from miscellaneous sources such as State aid, rents, utility service charges, et cetera."[5]

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[3] In New York City, rent control ended for office space in mid-1963, as noted earlier.

[4] Leo Grebler, *Experience in Urban Real Estate Investment* (New York: Columbia University Press, 1955), p. 14. In "Land Tenure in the Central Business District," Seyfried and Appelo concluded that "real estate in the central business district [of Seattle and San Francisco] is mostly owned by organizations of indefinite life, *Corporations* and *Estates*," tending to make for low rates of open market sales. (*Land Economies*, May 1966, p. 177.)

Large office-building loans require individual lenders, or groups of lenders, with ample resources to originate them. The increasing postwar scale of the largest financial institutions has obviously facilitated the growing physical scale of private office building developments. The total assets of the five largest life insurance companies, for example, have tripled since World War II, reaching a combined figure of $74 billion at the end of 1965. By then, the two largest companies each held assets valued at more than $22 billion.

Various methods of financing private office buildings have been relied on during the postwar years to meet growing needs for capital. Mortgages, private placements, corporate securities, ground leases, and sales-leaseback transactions have all played a part. The $61 million first mortgage on the Pan Am Building (1963) in Manhattan was supplied jointly by a life insurance company and a pension fund. The Seagram Building (1957) is said to have been financed through the public sale of $40 million in corporate debentures. The Empire State Building (1930) is now operated under the terms of several recent sales-leaseback transactions made with a life insurance company.

Intricate legal interests may be created in order to obtain the largest possible amount of financing. The fee may be sold to one investor subject to an operating lease permitting the holder to use or sublease the floor space in the building. The leasehold may then be mortgaged to a second lender. The price paid and financed for the individual interests may exceed the amounts otherwise involved if the property were encumbered with only a first mortgage.

Creation of subordinate estates in an office-building property, therefore, can generate demands for borrowed funds over and beyond amounts paid out originally for land and construction. The need for borrowed funds or credit in such cases partly depends on the capitalized price of net operating rentals, the extent to which equity funds can be raised to meet this price, and the techniques of financing involved.

Monetary Policy. During certain postwar periods, the impact of tightening capital market conditions on new private office-building construction seems to have been more delayed and less marked than in the case of one-family home construction. This result apparently reflects differences in types of sponsors, sources of funds, and scale of development.

1. One or only a few large new office buildings typically dominate construction activity in any one year or period of years within many larger localities. Large office buildings are often sponsored by owner occupants with some internal financing resources of their own and with long planning horizons. The decision to build or acquire a new office building is not contingent on the availability of financing for the sale of an older structure, as it often is in the housing market where many new-home buyers are old-home sellers.

2. Large new office buildings require substantial amounts of financing. These requirements are usually met largely by borrowing within one or more sectors of the national capital markets. Recourse may be taken to financing alternatives not ordinarily open to speculative housing developers, including the issuance of corporate securities. On occasion, sponsors of large office buildings may turn to sale-leaseback transactions made only in connection with medium- or large-sized projects of any type of real estate.

3. Large new buildings often require long forward financing commitments. Once obtained, a forward commitment becomes essentially immune to the effects of later changes toward tighter monetary conditions. Forward commitments may be provided especially by life insurance companies, a type of nondepositary lender likely to be affected less immediately by tighter credit conditions than depositary institutions are. During periods of market tightness, many life insurance companies cut back later on commitments for commercial properties than they do on residential commitments.

4. Costs of financing office buildings—particularly speculative ones—constitute only a minor consideration compared to the availability of borrowed funds. Availability of funds for office construction is enhanced by the fact that many office-building borrowers are incorporated. Hence they are often exempt from the State usury ceilings on mortgage charges which may apply only to individuals, such as home buyers. When credit conditions are tight, these usury ceilings may inhibit lending to borrowers subject to their provisions.

Tighter credit conditions, then, may have a long-delayed effect on starts of large new office buildings and expenditures for on-going projects. To the extent that tight money helps to slow the general pace of economic expansion, of course, it will affect aggregate demand for office floor space. In this way, it may discourage some plans for new buildings scheduled to be marketed several years in the future.

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[5] Kinane, "Public Office and Court Buildings," *op. cit.*, p. 686.

The more immediate effect of tighter credit is probably to dampen plans to erect smaller office buildings with shorter development periods. These small buildings, as noted earlier, ordinarily account for a substantial share of new office structures, although they may account for only a small portion of total new office floor space in larger metropolitan areas. If so, the marginal effects of monetary policy on office-building activity may indeed be important. Further study of experience within specific localities is needed to test this hypothesis.

Leasing

Advance leasing of office floor space for future delivery is a common feature of the market. This practice is possible because tenant needs for accommodation can often be scheduled ahead with certainty. And they can be postponed temporarily by crowding up in current quarters.

For office floor space in new buildings, advance leasing may proceed many months—if not a year or more—prior to opening. Once completed, new buildings with preleased floor space can begin operations with assurance of some current income. This is the very time, of course, when operating expenses are starting up and pressures would otherwise be mounting for quick lease negotiations on terms that might be less favorable for landlords.

Advance leasing of new floor space allows future additions to the local supply of immediately-available floor space to be absorbed gradually. It eases the market shock that could occur if all newly-finished floor space were first thrown on the market only at the time of completion.

Advance leasing, in effect, allows yet-to-be completed structures to compete with older buildings for tenants, even though the new floor space can be offered only for future delivery. From one point of view, this means that statistics on vacancy rates in completed buildings — based on floor space available for immediate delivery — understate the aggregate market supply to the extent that floor space is currently for rent in new buildings to be completed later.

Some floor space in older buildings is usually offered, too, for future delivery pending the moving-out of tenants currently in occupancy. The amount of such floor space for rent on local markets depends on the rate at which tenants move. The period covered for future delivery depends on the length of advance notice of moving that tenants are required to give to landlords. This is another supply feature of the market that vacancy statistics fail to take into account.

Leasing of office floor space — being based on direct negotiation — reflects the relative bargaining positions of landlord and tenant, the quality and amount of square feet of office floor space involved, and the extent of services to be rendered by the landlord, among other things. Such considerations make for unstandardized contracts similar to leases for retail space in shopping centers.

Rental Rates. Local practices of quoting rates for office floor space vary. In most places, rents on leases of a year or longer are quoted in terms of dollars per square foot per year. But in such places as San Francisco, Honolulu, and Los Angeles, rents are quoted in terms of dollars per square foot per month.

In Manhattan, rental rates for floor space in new office buildings may exclude certain services — such as floor waxing, the washing, polishing, or moving of furniture, lamp maintenance, carpet shampooing, wall washing, and soap and towels — that landlords commonly agree to supply in many other cities. Moreover, rental rates for new office floor space in Manhattan, Chicago, and Boston are often based on the occupancy of an entire floor by one tenant. In other cities, rates usually refer to space on floors tenanted by several occupants. Quoted on this basis, full-floor office rents might be 10 to 30 per cent or more higher.

As a general rule, tenants occupying large contiguous amounts of office floor space pay lower rents per square foot than small tenants. In the case of office space in new Manhattan office buildings, for instance, tenants using 10,000 square feet or more of office space may pay rents averaging a tenth to a third less than small tenants seeking 500 to 2,000 square feet each. Thus the changing share of large and small tenants in total office occupancy can complicate an interpretation of the significance of fluctuations in average rents reported for a group of buildings.

Rental rates for new office space in Manhattan ordinarily relate to "loft-type" unimproved floor space. A tenant may have to partition and furnish much of this area at his own expense, unless the landlord agrees to share the cost as a form of non-rent concession. Hence the importance in a lease agreement of the provisions of the "building standard" — an itemized account of the ordinary construction work which the landlord agrees to supply and install for each tenant in his own unit of floor space. In many other cities, office rents are for "turn-key" jobs, which may be fully partitioned and carpeted.

Lease Maturities. Customary lease maturities also differ from place to place. In Manhattan, leases for new office floor space may run as long as 15 to 20 years or more, plus renewal options, particularly for prime tenants. In most other metropolitan areas, leases in new buildings seldom run longer than 10 years, and often less than five years. In Detroit, Milwaukee, San Francisco, and Washington, D. C., the typical lease is said to run for three to five years.

The longer lease term in Manhattan reflects in part several underlying demand factors. Large businesses with national headquarters in Manhattan are in a position to enter into long-term leases for large contiguous amounts of floor space, due to their corporate form of organization and their almost certain future need for ample headquarters floor space. Considerable prestige may attach to office headquarters and large sums may be spent to embellish them. It may prove feasible to write off such sums only over a long lease term.

Also, leases ordinarily do not show up on balance sheets as corporate liabilities.[6] Hence long leases appear to involve no greater financial commitment than short ones. And the large aggregate rentals agreed on in long-term lease contracts are usually payable in installments only one month at a time.

But Manhattan's longer leases cannot be explained fully by the fact that about 150 of the nation's 500 largest industrial corporations maintain their business headquarters there and compete for office accommodations. Some 50 large industrial corporate headquarters are located in Chicago. Yet relatively few office leases run longer than 10 years.

Office leases with maturities of about five years or longer generally contain escalator clauses. These lease provisions are designed to shift to the tenant at least part of the risk of any future change in the expense of operating the building. They usually require the tenant to share proportionately in any increase or decrease in property taxes during the term. In addition, the tenant may share in changes in other designated operating expenses, such as janitorial wages. The inclusion of escalator clauses in leases running for a number of years helps to explain why annual basic rents payable under such agreements may be lower than rentals paid under short-term leases lacking escalator clauses.

Future Commitments. Leases for office floor space represent substantial financial commitments undertaken by tenants. Contracts covering thousands of square feet of floor space and running for 5 to 20 years can involve millions of dollars in advance rental commitments. A one-year lease for only 500 square feet of floor space may constitute an advance order or gross sale of $1,000 to $4,000.

For the landlord, such leases evidence an assurance of future income, unless default occurs. This advance commitment represents a valuable financial asset. It may serve as the basis for obtaining credit to finance the development or acquisition of the property itself or the right to operate the premises.

The lending practice has grown, in fact, of making payouts on permanent mortgage loans contingent, at least in part, on the level of occupancy or the amount of the rent attained in a new privately-owned office building. This custom has tended to encourage owners to grant temporary rent or non-rent concessions or to assume the unexpired leases of incoming tenants, if necessary, to fill up new buildings and so qualify for the largest possible loan disbursement. If an owner assumes or "takes back" a lease, of course, he must pay rent out of his own pocket on the vacated floor space until the lease expires or until the floor space can be sublet or re-rented.

The quality of long-term commitments to

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[6] Long-term leases signed some time ago, on the other hand, may represent valuable financial assets if escalated rents currently being paid under their terms are below going rents for comparable newly-leased quarters.

pay office rent obviously reflects the character of the tenants behind them. This, in turn, serves as a bargaining point in negotiating the amount of rentals to be paid. Some experts consider heavy-industry firms to be highly desirable tenants, presumably because such firms are deemed to have substantial assets and staying power, even though they may experience volatile cyclical swings in earnings. Business-service firms with uncertain income or few solid assets may be rated lower. To cover the greater risk represented by lower-quality tenants, premium rents may be charged. In such cases, reports of higher rents may signify a reduction in tenant quality rather than a strengthening in market demand.

Lease Assumptions and Concessions. Assumed leases or lease concessions are not always reflected in the amount of rent rolls. Since rent rolls are usually based on gross income indicated by signed leases, they ordinarily exclude expenses directly associated with leasing, whether in the form of lease assumptions or concessions. This exclusion can limit the usefulness of rent rolls as a measure of the financial viability of an office building against which payouts of permanent financing may be made.

The practice of assuming leases when competition is keen for tenants in new buildings dates at least as far back as the 1890's in Chicago.

> "The financial success of these new skyscrapers was, until the end of the World's Fair in 1893, greater than might have been anticipated. Tenants poured out of the old buildings, now rapidly becoming obsolete, into the new and more modern quarters that had better elevator service, more ornate fixtures, and more light and air. This exodus was facilitated in many cases by the assumption of old leases by the agents of the new buildings." [7]

Nonrent concessions may be offered in the form of "free" landlord services. These services may consist of alterations, finishing-off details, or decorations to tenant quarters. They may also include the provision of the services of an architect, without direct charge to the tenant, to plan the layout of the office interior. Or the landlord may pay the tenant's expenses of moving. In one case, a landlord of a new office building on the West Coast agreed to buy radio time to advertise his building in a city located 100 miles away as a concession to a tenant in the business of selling radio time.

An example. Some of the complex interrelated aspects of leasing and financing a large-scale postwar office building are illustrated by the following excerpts from a prospectus of the Uris Buildings Corporation. They summarize certain features of a building located at Number Two Broadway in Manhattan.

> "This building, owned by Uris Broadway, Inc., a wholly owned subsidiary of the Company, is a completely air-conditioned 32-story office building, first occupied by tenants in February 1959, which contains approximately 1,324,000 square feet of rentable area, including retail shops and storage areas, and is serviced by 26 high-speed automatic elevators and two heavy-duty service elevators. The building occupies the block front on the East Side of Broadway, . . . on a plot of approximately 73,000 square feet.
>
> "The land on which the building is located is held under a long-term net lease from the New York Produce Exchange for an initial term of 50 years ending May 31, 2006, which contains options to renew the lease for two additional 25-year periods. The net rent under this lease is $275,000 per year until May 31, 1981, and thereafter . . . not less than $275,000 per year.
>
> "The building and the leasehold interest in the land upon which it is located are subject to the lien of a mortgage entered into by Uris Broadway, Inc., under which $26,000,000 aggregate principal amount of First Leasehold Mortgage Sinking Fund 5½% Bonds were authorized, of which $24,500,000 aggregate principal amount was outstanding at November 30, 1963. On December 19, 1963, Uris Broadway, Inc. refinanced such mortgage, whereupon $28,000,000 aggregate principal amount of new First Leasehold Mortgage Sinking Fund 5½% Bonds . . . were authorized and outstanding. . . .
>
> "At November 30, 1963, there were a total of 45 tenants in the building under leases calling for gross annual rents of $7,055,590 or an average of $5.32 per square foot of rentable area. Two of the principal tenants in the building are Chemical Bank New York Trust Company and First National City Bank. Chemical Bank New York Trust Company maintains clerical offices on three floors and a portion of a fourth, aggregating 199,031 square feet, under a lease expiring in April 1980, which may be extended at the option of the lessee for a further term of 21 years. The lease also contains provisions permitting Chemical to elect to occupy additional space at various dates.
>
> "First National City Bank maintains executive

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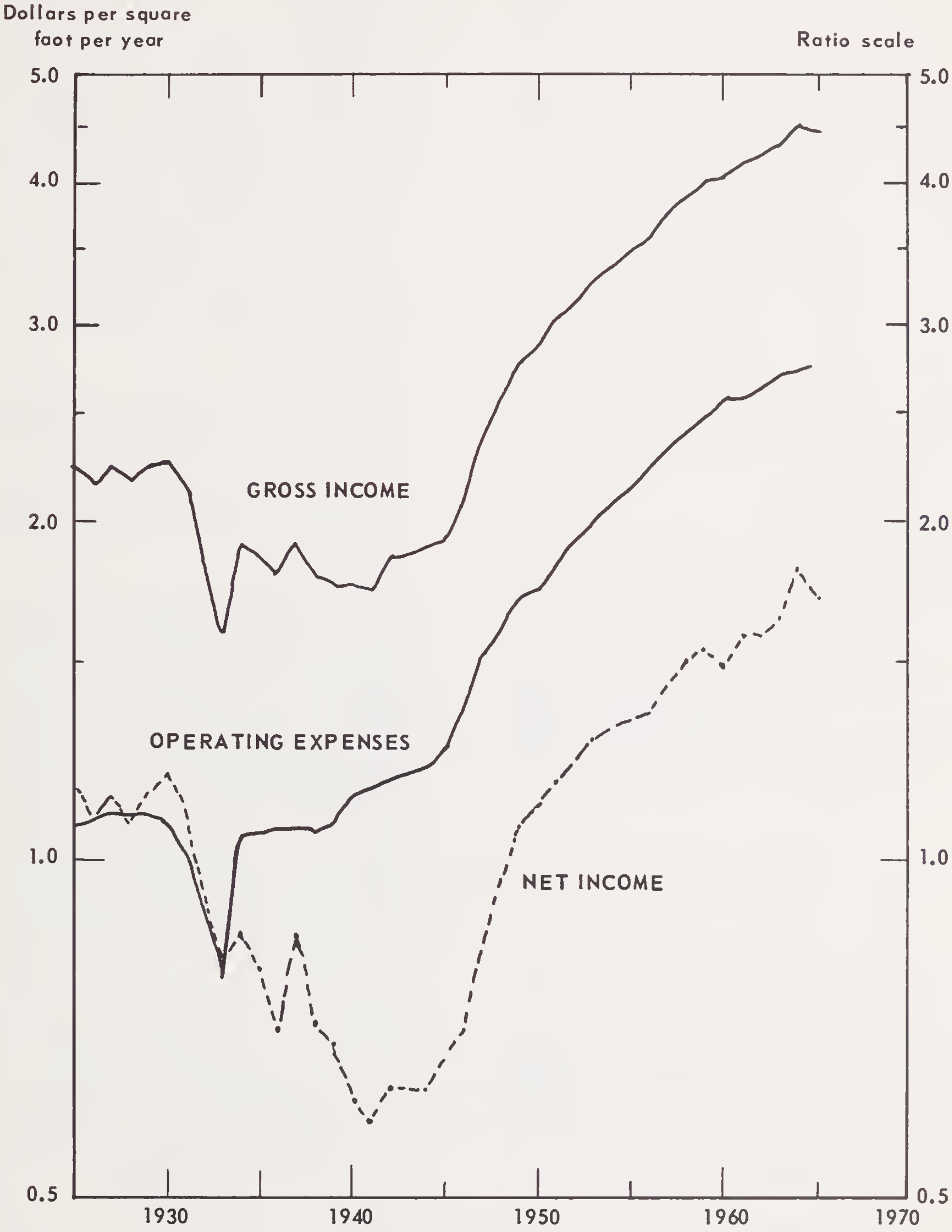
[7] Homer Hoyt, *One Hundred Years of Land Values in Chicago* (Chicago: University of Chicago Press, 1933), pp. 151-152. Copyright 1933 by The University of Chicago.

Chart 7

Operating Experience in Reporting Rental Office Buildings



SOURCE: See Appendix

and general offices on portions of two floors and banking facilities on a portion of the ground floor and has additional space in the basement, aggregating 138,300 square feet, under a lease expiring in April 1981, which may be extended at the option of the lessee for a further term of 25 years.

"The gross annual rents payable by those two tenants aggregate approximately $1,520,110 subject to increases or decreases upon the basis of increases or decreases in real estate taxes and wage rates of service and maintenance personnel. . . . Both tenants provide their own cleaning services. Eighteen other tenants lease areas of not less than 20,000 square feet each. . . .

"In addition to Chemical Bank New York Trust Company and First National City Bank, the tenants occupying more than 60,000 square feet each under leases which provided for original terms of 15 years or more, some of them being subject to earlier cancellation, are: American Electric Power Company, Inc., Moore-McCormack Lines, Inc., Haskins & Sells and Goodbody & Co. . . .

"The present assessed value of the building and land at Two Broadway for realty tax purposes is $31,500,000." [8]

Operating Experience

The postwar office boom gradually responded to opportunities for leverage in this type of investment. Leverage is inherent in the moderate ratio of net operating income to gross income that typically prevails in operating an office building.[9] It may be magnified by borrowing a large share of the total capital invested in the property.

Expenses of operating new and existing office buildings increased less over the postwar period than gross income did, according to available reports. As a result, average annual net income per square foot of rented floor space more than doubled. (Chart 7) This residual net income apparently provided an adequate source of funds to repay existing indebtedness as well as to reimburse owners for their investment.

Occupancy rates in office buildings, after reaching an historically high level in 1947, began edging down. They declined slowly through most of the 1950's as the supply of available floor space expanded more than the amount of occupied floor space. By 1965, however, average occupancy rates were still above levels reported in the mid-1920's, although such long-term comparisons are far from precise. (Chart 8)

With occupancy remaining high, net income derived from building operations picked up sharply after the mid-1940's. By about 1952, it attained a level close to the peaks of more than two decades earlier. Thereafter, it continued up.

This sharp rise in net operating income that began in the mid-1940's furnished the basis for what must have been a rapid increase in capitalized values of office buildings. This uptrend, coupled with expectations of still further rises in net income, undoubtedly provided a strong incentive for the construction boom that emerged during the early 1950's.

Since the mid-1950's, anticipations of continued increases in net income at the earlier annual pace have not been fully realized, judging from the charted series. (Charts 7 and 8) It is not clear, however, to what extent the declining rate of increase in net income through 1964 — and the absolute decline in 1965 — may reflect more than inadequacies of data based on consolidated annual reports of a varying number of buildings in a changing number of cities.

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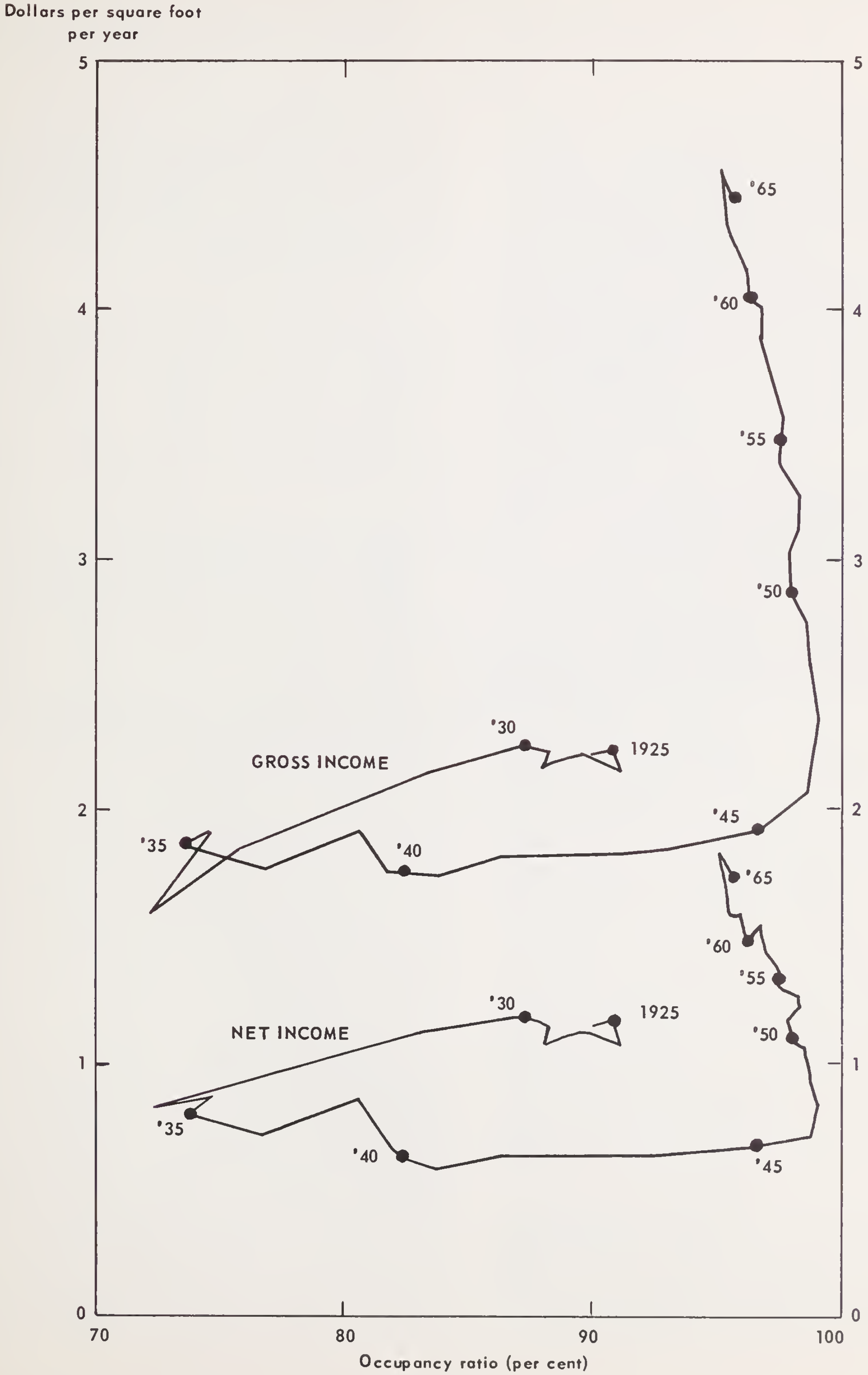
[8] Prospectus, Uris Buildings Corporation, January 30, 1964, pp. 11-12.

[9] Annual net income (before depreciation, interest, income taxes, and equity returns) averaged about two-fifths of gross income during each year since 1946 for private rental buildings covered by reports to the National Association of Building Owners and Managers. For findings in New York City between 1905 and 1950, see Leo Grebler, *Experience in Urban Real Estate Investment* (New York: Columbia University Press, 1955). Leverage is discussed in Shipp and Fisher, "The Postwar Boom in Hotels and Motels," *op. cit.*

Chart 8

Office Building Operating Experience and Occupancy Rates



SOURCE: See Appendix

Office Buildings versus Hotels and Motels

Office buildings and hotels-motels share certain economic features applicable to all types of income-producing properties. The impact of such influences as supply, demand, financing, and leasing on office-building markets, however, differs greatly from that on hotel-motel markets. A brief summary of some of these similarities and differences emphasizes the wide variation that exists in the nature and quality of income-producing real estate collateral.

The postwar office boom, like the motel boom, dates from the early 1950's. The hotel boom got under way somewhat later. Initially, new construction of hotels and office buildings was limited, or even forestalled, by the modernization of prewar buildings that added to the downtown supply of high-quality space.

New office construction was also dampened by the conversion of other types of buildings to office use. The amount of floor space converted to office use in many localities exceeded the amount of office floor space removed by demolition.

New hotel-motel construction, in contrast, was buoyed by many conversions of older facilities to other uses. There were many demolitions, too, partly to make way for new office buildings. Both these stimulative forces on new construction helped to offset the lack of any substantial growth in aggregate demand for hotel-motel rooms.

The motel boom developed largely to meet a shift in private hotel-motel demand toward outlying sites. The office boom emerged mainly to serve an expansion in aggregate public and private demand, accompanied by some shift toward suburban locations. Each of the hotel, motel, and office booms responded to a considerable upgrading in demand.

Postwar demand for office floor space expanded as office-type activities multiplied and as employment of office workers grew despite greater use of office machines and equipment. The expansive effect was probably magnified by an increase in the share of total office employment that found accommodation in office buildings. It was apparently reinforced by an increase in the use of office-building floor space per office worker — a form of undoubling that may be more typical of housing markets than of hotel-motel markets.

Total demands for transient space undoubtedly rose, too, over the postwar years. But the share of the total that went to hotels and motels declined. Competing outlets — ranging from travel trailers to overseas vacations — captured a larger portion of the market. Also, the number of consecutive nights spent in hotels and motels by the average guest probably declined as a result of improvements in transportation and communication. If so, the accelerated turnover of hotel-motel guests worked against new construction because the existing supply of rooms could serve more clients per year.

Office occupancy — in contrast to transient hotel-motel tenancy — runs in terms of years if not decades. Once occupied, office floor space remains off the market until vacated. Thus owners of rental buildings may be assured of some income well into the future. The slow turnover of many office tenants bound by long-term leases and capable of crowding-up temporarily pending a future move makes it necessary from time to time for developers to assume the unexpired portion of their leases in order to attract them into new buildings. Such practices are unheard-of in hotel-motel markets.

Hotel-motel occupancy is reflected in variable and uncertain weekly, monthly, and seasonal tenancy, rent schedules, and operating income. The almost daily turnover of clientele in older hotels and motels works in favor of new construction, since the latest facilities can compete for the entire local market of guests who are free to pick and choose. The need to re-rent hotel-motel rooms many times a year makes for a rapid rate of obsolescence of existing facilities lacking up-to-date amenities. It places an even higher premium on the intangible quality of management than in office buildings.

A surprisingly large share of new postwar office floor space has been custom-built for occupancy by public or private owners or for rental by private owners to one large tenant. All hotels and motels, on the other hand, have been erected for private ownership and speculative rental in small units to many private tenants. These differences result, among other things, in different sources and practices of financing office and hotel-motel building.

For new office buildings, mortgage borrowing may represent an even smaller share of total debt financing than for hotels and motels. A tenth to a fifth of all postwar office construction may have been financed, in effect, by the sale of federal, state, or local government obligations. Another unknown but substantial share has been underwritten through the private placement or public sale of corporate bonds, and through sale-leaseback transactions —probably a higher share than for hotels and motels.

Typical terms of mortgages secured by office buildings appear to have been somewhat more liberal than on hotel-motel collateral, largely because of longer maturities on office leases. In part, however, the more liberal terms on office loans reflect the fact that certain other provisions have been stricter. Office-building loan agreements often call for advance approval by the lender of major tenants, or make partial disbursements of funds contingent on the pace of leasing floor space, or require assignment to the lender of completed leases. Such provisions cannot apply to the financing of hotels and motels where long-term leasing is not the rule.

Changing federal income-tax laws and regulations have undoubtedly exerted a somewhat different impact on office building than on hotel-motel construction. These changes have presumably had little direct effect, if any, on public office construction or on decisions of public agencies to rent floor space in new privately-owned office buildings. For private office tenants like advertising agencies, relatively high postwar income-tax rates may have made new office floor space seem more financially attractive by dulling the bite of their higher rents, even though rents represent a minor business expense. No such consideration applies, of course, to occupancy of hotels or motels by vacationing families or others who cannot deduct their outlays as business expenses.

Since 1954, liberalized depreciation allowances on new buildings for federal income-tax purposes undoubtedly has given impetus to some speculative construction of private offices as well as hotels and motels, and to the sale and resale of others. These incentives were further enhanced by reported experience in operating existing structures that proved to be generally more favorable for office buildings than for hotels and motels.

APPENDIX

Notes on Charts and Table

Chart 1, page 7, depicts heretofore unpublished Census Bureau estimates of the annual value of new construction put in place for privately-owned office buildings. This annual series, which ~~excludes~~ the value of land, was terminated after 1965. Dotted lines between 1946 through 1949 indicate rough estimates made by the author. The data through 1958 cover 48 states; thereafter, they cover 50 states.

The volume of construction shown in the chart includes all private buildings used primarily for the rental of office floor space, or to house such owners as financial institutions. It accordingly covers banks, savings and loan association, professional, administrative, general-purpose, and similar office buildings. It excludes, however, office buildings erected by privately-owned public utilities, which are classed as public utility construction.

By definition, the data exclude all new publicly-owned structures. Other information suggests that public office buildings may account for as much as a tenth or more of total private and public office construction.

Prior to 1966, private office buildings were classed under the special category of "office buildings and warehouses." (Before 1956, this category excluded warehouses built for commerical establishments not engaged in selling storage space, such as a warehouse for a department store.) Of the total annual private construction classed under "office buildings and warehouses" between 1950 and 1965, the Census Bureau estimates that office buildings accounted for between 70 and 90 per cent.

Since January 1966 (and in data revisions going back to 1962 in the current series now being published), new private office building construction has been included under the general category of "commercial construction." This category also includes warehouses, stores, restaurants, and garages.

With the change in published detail has come a change in definition of "office buildings" which are classed as commercial construction. The present series now being published generally excludes from this category any building erected by an owner whose primary activity lies in some other field. Office buildings erected by educational institutions, for example, are now classed as educational rather than commercial construction. Those erected by industrial firms would ordinarily be classed under "office building" construction only if built elsewhere than on a plant site. and not for the exclusive use of the owner or its parent organization.

Before the recent changes were made in the construction series, public office buildings were classed in the category of "administrative and service buildings." This category also included custom houses, courthouses, State capitols, city halls, jails, penitentiaries, police stations, and firehouses. In the present series, public office buildings are classed under the more comprehensive category of "other public buildings," which includes administrative, service, social, and recreational buildings. This is where the Port of New York Authority's World Trade Center will be classed. In both earlier and later series, Department of Defense office buildings — such as the Pentagon Building and the Forrestal Building now under way in Washington, D. C. — are classed under "military construction."

Chart 2, page 8, depicts building permits issued in the stated number of local jurisdictions for the construction of privately-owned "office buildings," as defined in the note to Chart 1.

The building-permit valuation data shown in Chart 2 and cited in the text have serious limitations. They ordinarily reflect certain anticipated construction costs, without allowance for later cancellations or change orders. The building-permit figures usually understate costs actually incurred. Costs of demolishing or moving structures on sites to be used for office buildings are excluded. So are fees for architectural and engineering work. By definition, costs of land and land development are excluded as well as all costs of publicly-owned structures.

Many permit-issuing places require special permits — other than building permits — for service facilities or for plumbing, heating, air conditioning, elevators, or similar equipment essential to the general use of the structure. In such places, the value of private building permits considerably understates costs of constructing office buildings for which this type of equipment is an integral part.

Chart 3, page 14, depicts annual new building of rental office floor space and annual demolition of office floor space in downtown Chicago. The data come from records of the Building Managers Association of Chicago. The statistics exclude floor space in small 2- or 3-story office buildings.

Table 1, page 22, gives data on floor space built in private and public office buildings in downtown Chicago. The compiled statistics are based on records of the Building Managers Association of Chicago. The data compiled in the table exclude space added either by conversion or by additions to existing structures. They also exclude space in small 2- or 3-story office buildings.

Chart 4, page 25, depicts persons with selected office-type occupations. The data are for the economically active civilian population, including the following arbitrarily-selected occupations: stenographers, typists, and secretaries; office machine operators, bookkeepers and cashiers; insurance agents, brokers, and underwriters; advertising agents and salesmen; real estate agents and brokers; stock and bond salesmen; accountants and auditors; architects; dentists; designers and draftsmen; engineers, technical; lawyers and judges; messengers and office boys; physicians and surgeons; managers, banking and other finance; managers, insurance and real estate; attendants, physician's and dentist's office; clerical and kindred, other. The sources are U. S. Bureau of the Census, *Historial Statistics of the United States* (Washington, D. C.: USGPO, 1960), p. 75, and *U. S. Census of Population: 1960. Subject Reports, Occupational Characteristics.* Final Report PC(2)-7A. (Washington, D. C.: USGPO, 1963), Table 1. The figures imply that growth in selected office-type occupations between 1940 and 1960 accounted for a record third of the aggregate growth in the total economically active population.

Chart 5, page 27, depicts rented office floor space per office tenant and per office worker in buildings for which reports are available. The data come from the Office Building Experience Exchange Report published annually by the National Association of Building Owners and Managers. They represent the consolidated results of voluntarily-submitted reports for a varying number of private rental buildings of assorted ages in a varying number of cities, largely located elsewhere than in New York City. In 1965, only seven private office buildings in New York City were included in the Report out of a total of more than 2,100 on the property-tax rolls, of which many were probably quite small in size. Coverage varies among other cities, too, since local reports may relate solely to certain larger, professionally-managed structures often held by longer-term owners. The consolidated results thus reflect variations from year to year in coverage and location of new and old buildings as well as real changes in operating experience. Centrally-located office buildings are probably better represented than outlying ones.

The charted data and related statistics imply the following changes in office buildings and office occupancy since 1952, the first year for which the charted data are available.

	1952	1965
Number of buildings reported	573	598
Number of square feet of rentable office floor space (millions)	61.3	77.6
Number of square feet of rented office floor space (millions)	60.3	74.1
Average number of square feet of rentable office floor space per office building (thousands)	106.6	129.8
Average number of square feet of office rented floor space per office tenant	1,113	2,622
Total number of office tenants	54,169	28,271
Average number of square feet of rented office floor space per office worker	121.1	124.0
Total number of office workers	497,857	597,805
Average number of office workers per office tenant (rounded)	9	21
Average number of office tenants per office building (rounded)	94	47
Average number of office workers per office building (rounded)	866	1,000

Chart 6, page 31, depicts domestic offices of commercial banks, mutual savings banks, and savings and loan associations within the United States. Sources are the annual reports of the Federal Deposit Insurance Corporation and the *Savings and Loan Fact Book* of the United States Savings and Loan League.

Charts 7 and 8, pages 39 and 41, depict annual operating experience in reporting rental office buildings per square foot of rented office floor space. Net income is before depreciation, interest, income taxes, or returns to equity owners. For source and comments, see under Chart 5. Semi-annual occupancy and use-of-space reports, with broader coverage than the annual data, are published by the same source in *Skyscraper Management.* The semi-annual statistics have much the same general limitations that the annual ones do.

Additional References

Sources of information about office-building markets range widely. They include prospectuses and annual reports of builders, developers, and real estate investment firms, periodic reports of local chapters of the National Association of Building Owners and Managers, and releases of real estate boards, city planning agencies, and office leasing or investment brokers as well as newspaper and magazine articles. The following selected list of published materials may also prove to be useful, in addition to the references cited in the text.

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